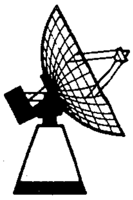
NEC

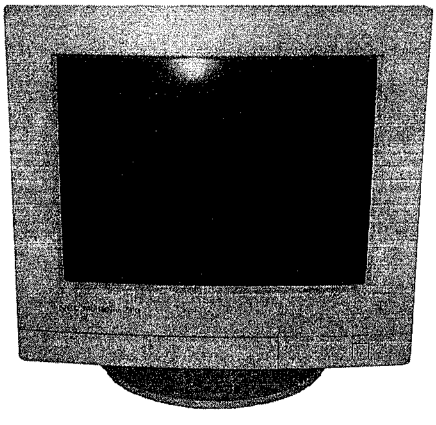
MODEL JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3

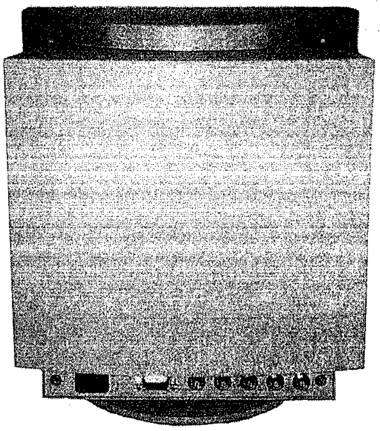
COLOR MONITOR MultiSync 5FGp SERVICE MANUAL

PART NO. 599910371



Better Service
Better Reputation
Better Profit





SPECIFICATIONS

A. Electrical Description

Picture tube	17" Flat Square CRT, 1370mm radius 90 degree deflection, 0.28mm To dot pitch Dot type black matrix, Medium-short persistence phosphor, Dark bulb, High contrast, Anti-static coating, Invar shadow mask.		
Input Signal	Video	: Analog 0.7Vp-p 75Ω Positive	
	Sync	: Separate sync	TTL Level
		Horizontal sync	Positive/Negative
		Vertical sync	Positive/Negative
		: Composite sync	TTL Level Positive/Negative
		: Composite Sync on green Video sync 0.3Vp-p Negative (Video 0.7Vp-p Positive)	
Display Colors	Analog Input : Unlimited colors (depends upon video card used)		

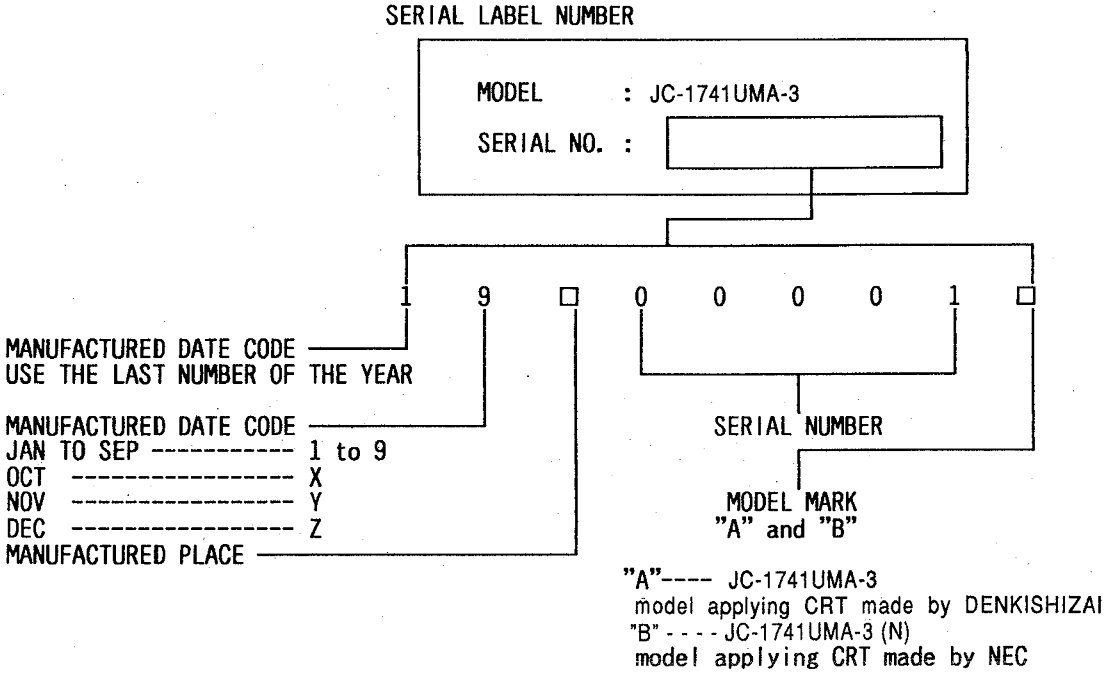
Synchronization	Horizontal :	31kHz to 62kHz (Automatically)
	Vertical :	55Hz to 90 Hz (Automatically)
Resolution	Horizontal :	1024 dots. (noninterlaced)
	Vertical :	768 lines (noninterlaced)
Video Bandwidth	D-SUB :	80MHz
Active Display Area	Horizontal :	290mm (Active display area is dependent upon the signal timing)
	Vertical :	217mm
Active Display area Fullscan	Horizontal :	316mm
	Vertical :	237mm
Misconvergence	Less than 0.5mm at 290 by 217mm of the screen center area	
Power Consumption	JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3	155W
Rated Voltage	JC-1741UMA-3, (N)	AC 120V, 60Hz
	JC-1741UMB-3/B-3(EE)/R-3	AC 120-240V, 50/60Hz
Current Rating	JC-1741UMA-3, (N)	2.6A
	JC-1741UMB-3/B-3(EE)/R-3	1.6A
Environmental Considerations	Operating	Temperature 0°C to +35°C Humidity 30% to 80%
	Storage	Temperature -20°C to 60°C Humidity 10% to 90%

NOTE: The above specifications are subject to change without notice for further improvement.

NEC Corporation

SERIAL NUMBER INFORMATION (JC-1741UMA-3)

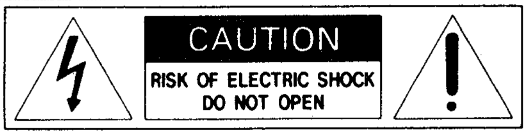
Refer to the serial number information


SERIAL LABEL NUMBER
MODEL : JC-1741UMA-3
SERIAL NO. :
1 9 □ 0 0 0 0 1 □
MANUFACTURED DATE CODE
USE THE LAST NUMBER OF THE YEAR
MANUFACTURED DATE CODE
JAN TO SEP ----------- 1 to 9
OCT ----------------- X
NOV ----------------- Y
DEC ----------------- Z
MANUFACTURED PLACE
SERIAL NUMBER
MODEL MARK
"A" and "B"
"A"---- JC-1741UMA-3
model applying CRT made by DENKISHIZAI
"B" - - - - JC-1741UMA-3 (N)
model applying CRT made by NEC

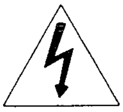
JC-1741UMA-3, (N) ONLY

WARNING

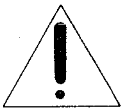
TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO DO NOT USE THIS UNIT'S POLARIZED PLUG WITH AN EXENSION CORD RECEPTACLE OR OTHER OUTLETS, UNLESS THE PRONGS CAN BE FULLY INSERTED.
REFRAIN FROM OPENING THE CABINET AS THERE ARE HIGH-VOLTAGE COMPONENTS INSIDE. REFFER SERVICING TO QUALIFIED SERVICE PERSONNEL.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK). NOUSER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included.

Therefore, it should be read carefully in order to avoid any problems.

INTRODUCTION TO THE MULTISYNC FG COLOR MONITOR

The MultiSync 5FGp monitor allows you to "plug and play"; the MultiSync technology provides you with automatic compatibility with multiple operating platforms and a vast array of graphics standards allowing resolution upgrades without upgrading the monitor.

The larger 17", high contrast, flatter screen offers improved clarity and enhanced color and image quality.

Color Control allows you to adjust the colors on your screen to exactly what you want. Thus eliminatig misrepresentations and frustration.

The MultiSync 5FGp monitor strictly follows ErgoDesign guidelines. ErgoDesign describes a philosophy governing the design of the MultiSync monitors. The goal of ErgoDesign is to maximize the comfort and productivity of the end user.

FEATURE HIGHLIGHTS

IPM SYSTEM

IPM (Inteligent Power Manager) System is an innovative power saving utillity. When this feature is active, the monitor will consume less than one third of the normal consumption. This innovation adds up to energy saving and longer monitor life.

Note: This utility can only be enabled if your video system supports this feature according to VESA Display Power Management Signaling (DPMS) criteria.

MULTIPLE FREQUENCY TECHNOLOGY

The multiple frequency technology automatically adjusts the monitor to the video card's scanning frequency thus displaying the resolution you require. The MultiSync FG also supports multiple operating platforms including IBM compatible and Macintosh family systems.

Increased resolution adds to the image clarity, and the MultiSync 5FGp monitor provides a wider range of higher resolutions to meet your needs for now and in the future.

A Wide Range of Graphics Standards is displayable by the MultiSync 5FGp monitor including:

- VGA at 640X480 at 60 and 72Hz
- Super VGA at 800X600 56, 60, 70 and 72Hz
- MAV II at 640X480 66.7Hz
- 8514/A at 1024X768 Interlaced
- XGA at 1024X768 Interlaced
- 1024X768 Non-Interlaced 60, 70, 75 and 80Hz
- 1280X1024 Non-Interlaced 60, 70 and 74Hz

SCREEN TECHNOLOGY

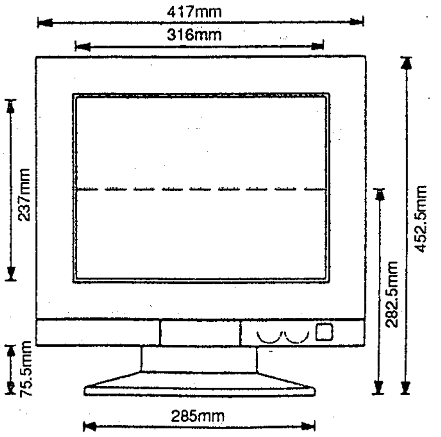
A High contrast Tube with a 0.28 mm dot pitch increases the clarity and displays greater detail. Good clarity allows your eyes to flow over the screen image and more easily absorb the information.

The Flatter Screen of the MultiSync 5FGp monitor reduces distortion of your image, and reduces reflections.

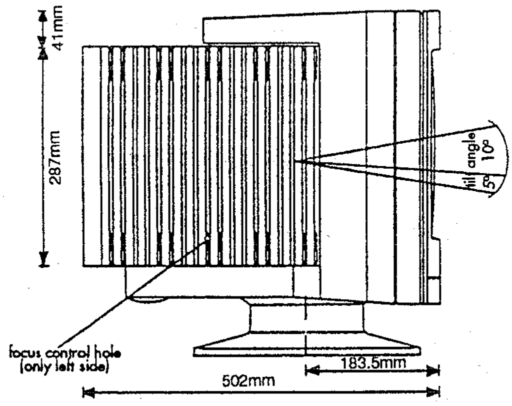
Increased Brightness provides higher contrast and more vivid colors.

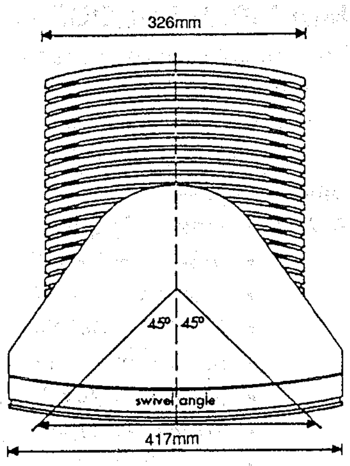
MECHANICAL DESCRIPTION

1. Cabinet	Molded plastic cabinet with tilt swivel base.
2. Dimensions	417 (W) X 452.5 (H) X 502 (D) mm


417mm
316mm
237mm
452.5mm
282.5mm
75.5mm
285mm

3. Tilt Swivel Range


41mm
287mm
tilt angle
10°
5°
focus control hole
(only left side)
183.5mm
502mm

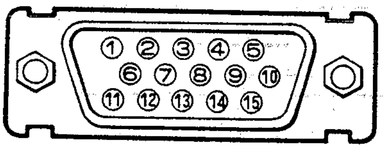

326mm
45°
45°
swivel angle
417mm

4. Weight	25.5kg
5. Controls	Power Switch Brightness Control Contrast Control Color Switch Sync Switch H Size Increase, H Size Decrease H Position Left, H Position Right V Size Increase, V Size Decrease V Position Up, V Position Down Memory Recall Button Mode Status LED Degauss Switch
6. Input Signal Terminal	Mini D-SUB 15P Connector (FEMALE) D-SUB 15P Connector (FEMALE) BNC Connector (FEMALE) (See Page 3 for Pin Assigmments)

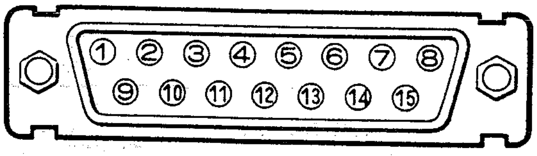
PIN ASSIGNMENT TABLE

D-SUB INPUT

MINI D-SUB 15P

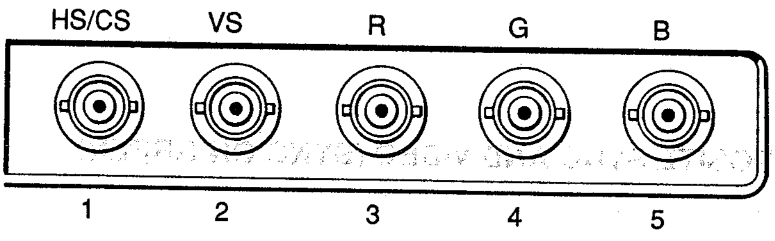


D-SUB 15P



Pin No.	VGA, 8514/A & XGA VGA/8514 Mini D-Sub 15P	Macintosh with Adapter D-SUB 15P
1	RED	GROUND
2	GREEN	RED
3	BLUE	H SYNC, H/V SYNC
4	GROUND	GROUND
5	GROUND (SELF TEST)	GREEN
6	GROUND	GROUND
7	GROUND	RESERVED
8	GROUND	N.C.
9	N.C.	BLUE
10	GROUND	N.C.
11	GROUND	GROUND
12	RESERVED	V SYNC
13	H SYNC	GROUND
14	V SYNC	GROUND
15	N.C.	N.C.

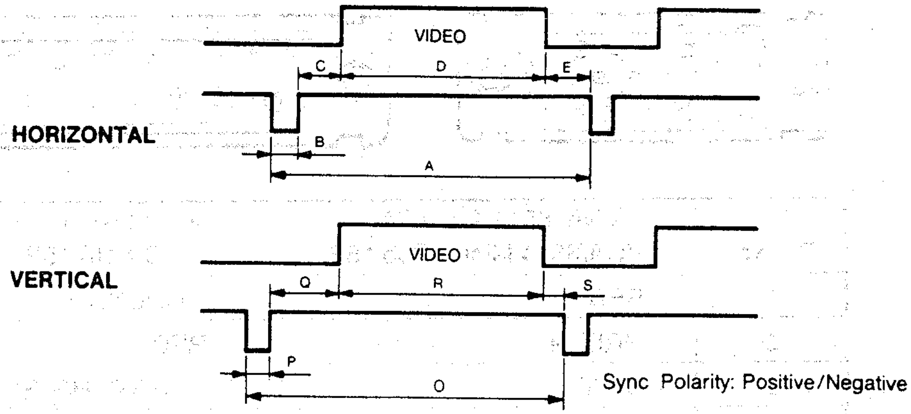
BNC INPUT



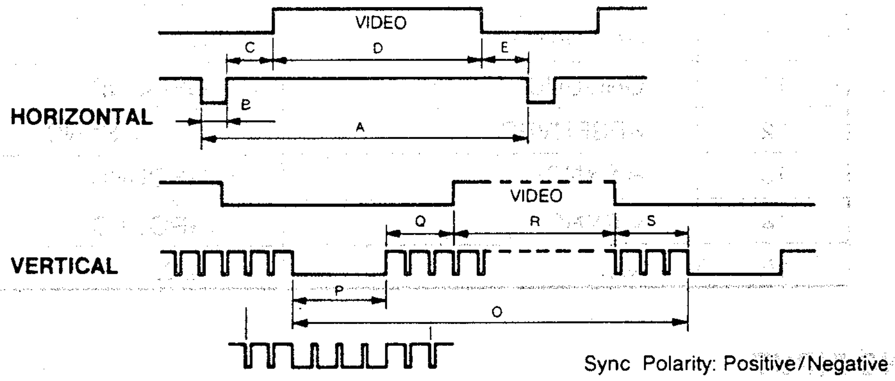
SIGNALS PIN-ASSIGNMENTS	SEPARATE SYNC	COMPOSITE SYNC	SYNC ON GREEN
1	H SYNC	H/V COMP SYNC	—
2	V SYNC	—	—
3	RED	RED	RED
4	GREEN	GREEN	GREEN WITH SYNC
5	BLUE	BLUE	BLUE

TIMING CHARTS

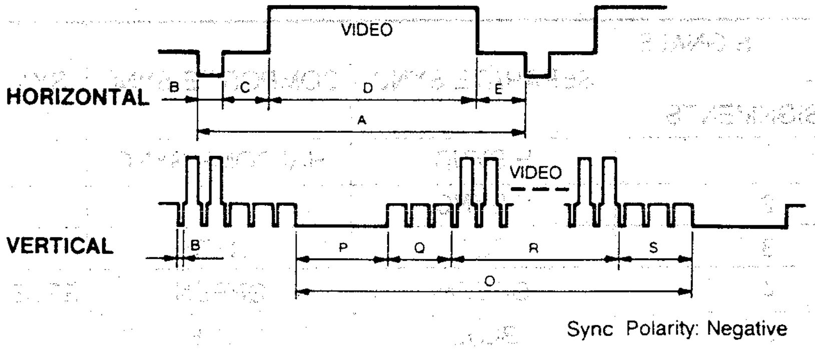
SEPARATE SYNC


VIDEO
C
D
E
HORIZONTAL
B
A
VIDEO
VERTICAL
Q
R
S
P
O
Sync Polarity: Positive/Negative

COMPOSITE SYNC


VIDEO
C
D
E
HORIZONTAL
B
A
VIDEO
Q
R
S
VERTICAL
P
O
Sync Polarity: Positive/Negative

COMPOSITE SYNC AND VIDEO (SYNC ON GREEN)

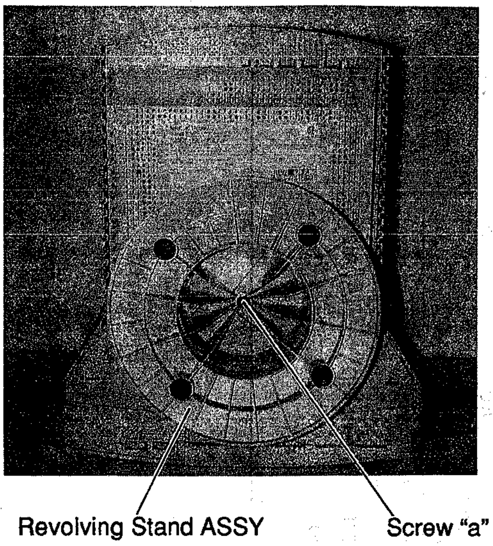

VIDEO
HORIZONTAL
B
C
D
E
A
VIDEO
VERTICAL
B
P
Q
R
S
O
Sync Polarity: Negative

PRESET TIMING

	VGA/MCGA compatible			8514/A	Macintosh -II	800X600 at 56 Hz	800X600 at 72 Hz	1024X768 at 60 Hz	1024X768 at 70 Hz	1280X1024 at 60 Hz	1280X1024 at 74 Hz
f_H kHz	31.47			35.52	35.00	35.16	48.09	48.36	56.48	64.31	78.6
A µs	31.78			28.15	28.57	28.44	20.79	20.68	17.71	15.55	12.68
B µs	3.81			3.92	2.12	2.00	2.399	2.09	1.813	0.97	1.07
C µs	1.91			1.25	3.17	3.56	1.279	2.46	1.92	2.23	1.90
D µs	25.42			22.8	21.16	22.22	15.99	15.75	13.65	11.96	9.48
E µs	0.64			0.18	2.12	0.67	1.119	0.369	0.32	0.369	0.24
f_V Hz	70.09		59.94	86.96	66.67	56.25	72.01	60.00	70.07	60.38	74.11
0 ms	14.27	14.27	16.68	11.5	15.00	17.78	13.89	16.67	14.27	16.56	13.49
P ms	0.06	0.06	0.06	0.113	0.09	0.06	0.124	0.124	0.106	0.047	0.038
Q ms	1.91	1.11	1.05	0.563/0.5	1.11	0.63	0.479	0.6	0.513	0.498	0.496
R ms	11.12	12.71	15,25	10.81	13.71	17.07	12.51	15.88	13.60	15.923	12.985
S ms	1.18	0.38	0.32	0/0.014	0.09	0.03	0.772	0.062	0.053	0.093	0.0
Remarks	Analog Video	Analog Video	Analog Video	Analog Video interlaced	Analog Video	Analog Video	Analog Video	Analog Video	Analog Video	Analog Video	Analog Video

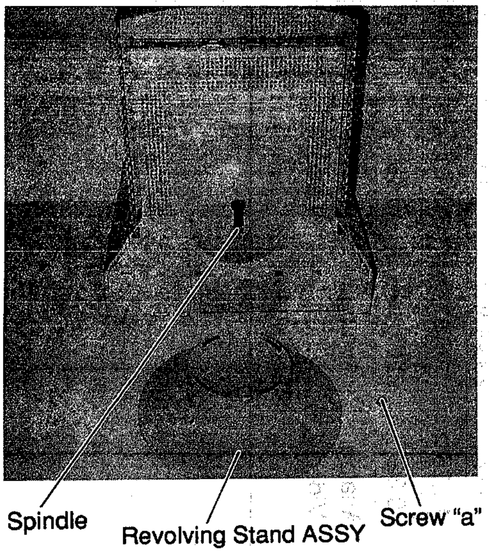
DISASSEMBLY

Tilt/Swivel ASSY


Revolving Stand ASSY
Screw "a"

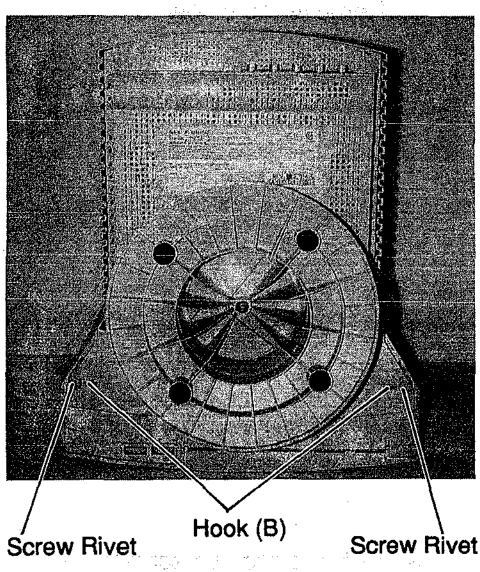
1. Turn the monitor CRT face down on a clean static free surface to prevent scratching CRT face.

2. Remove the screw "a".


Spindle
Revolving Stand ASSY
Screw "a"

3. Remove the Revolving Stand ASSY from the monitor.

Cabinet Back ASSY and Shielding Plate


Screw Rivet
Hook (B)
Screw Rivet

1. Turn the monitor CRT face down on a clean static free surface to prevent scratching CRT face.

2. Remove the two Screw Rivets. (For details, see below Fig. 1.)

3. Unhook the two Hooks (B).

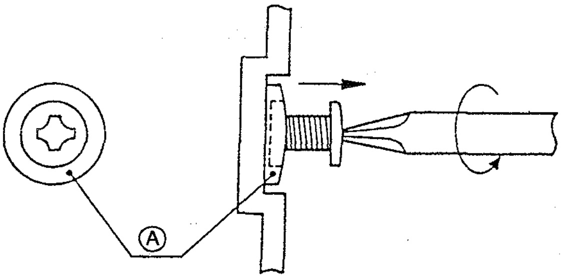
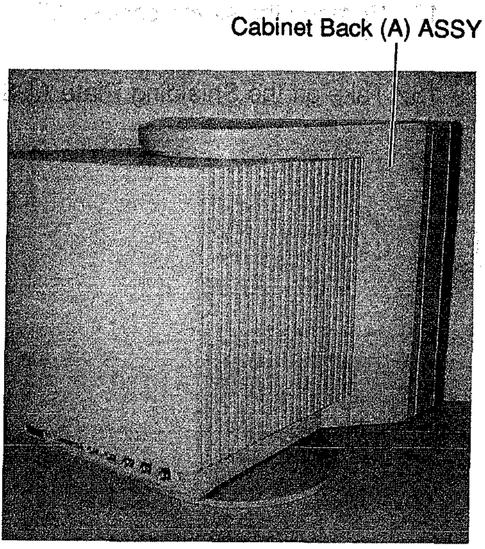


Fig. 1 Screw Rivet Removing Method

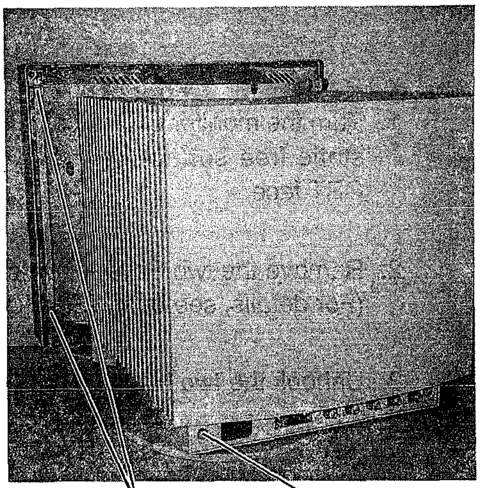
NOTE:

1. After Removing the Screw, take off the Ⓐ Part.
2. When reassembling, use the new Screw Rivets.

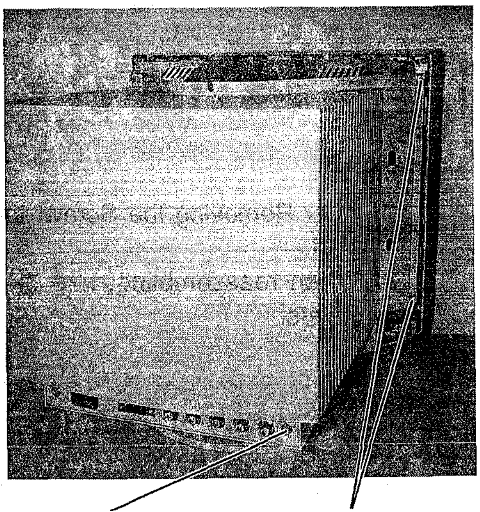

Cabinet Back (A) ASSY

4. Return the monitor as normal.

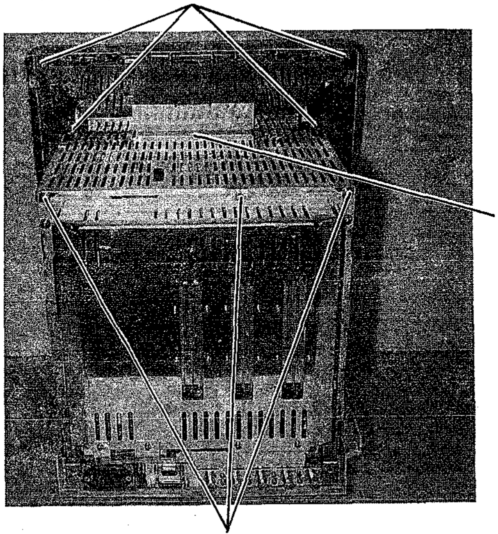
5. Take off the Cabinet Back (A) ASSY from the monitor.


Screw "b"
(Bracket (Back-B))
Screw "c"

7. Remove the two screws "b".
8. Remove the screw "c".


Screw "c"
Screw "b"
(Bracket (Back-B))

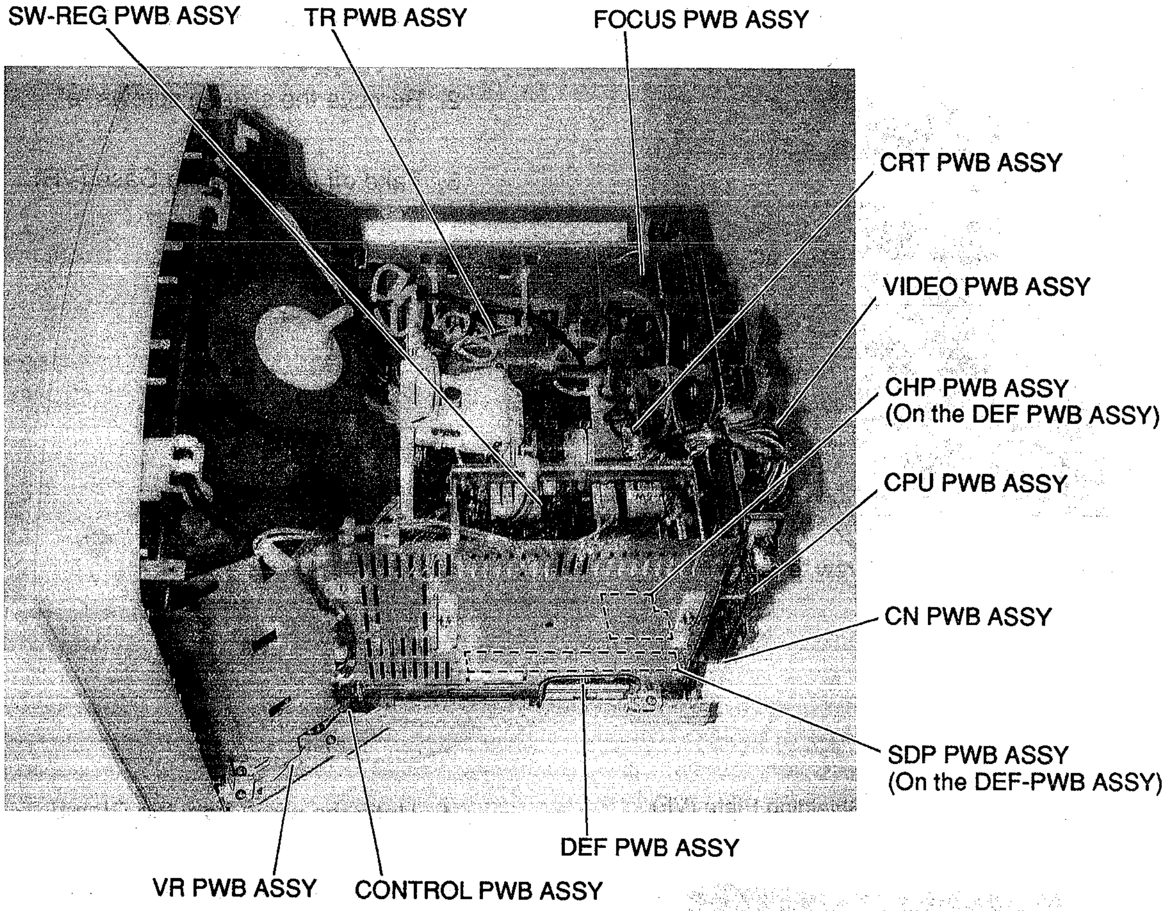
9. Remove the two screws "b".
10. Remove the screw "c".
11. Take off the Cabinet Back (B) ASSY from the monitor.


Screw "d"
Shielding Plate ASSY
Screw "d"

12. Remove the seven screws "d".
13. Take off the Shielding Plate ASSY.

BOARD LAYOUT

PART LOCATION BOARD LAYOUT

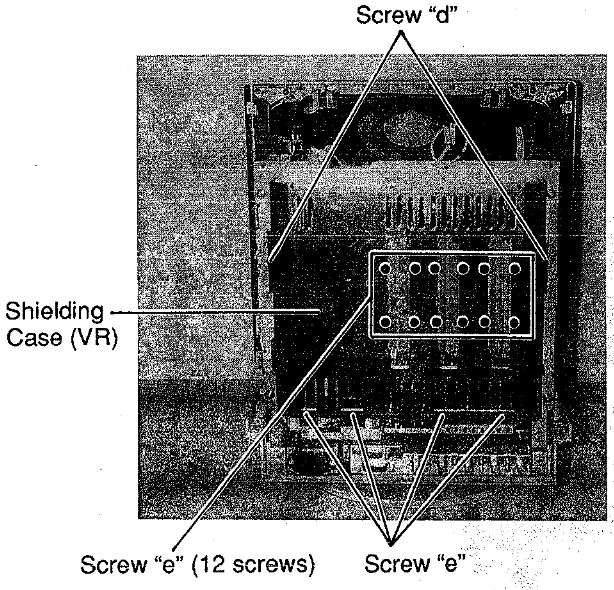

SW-REG PWB ASSY
TR PWB ASSY
FOCUS PWB ASSY
CRT PWB ASSY
VIDEO PWB ASSY
CHP PWB ASSY
(On the DEF PWB ASSY)
CPU PWB ASSY
CN PWB ASSY
SDP PWB ASSY
(On the DEF-PWB ASSY)
DEF PWB ASSY
VR PWB ASSY
CONTROL PWB ASSY

BOARDS

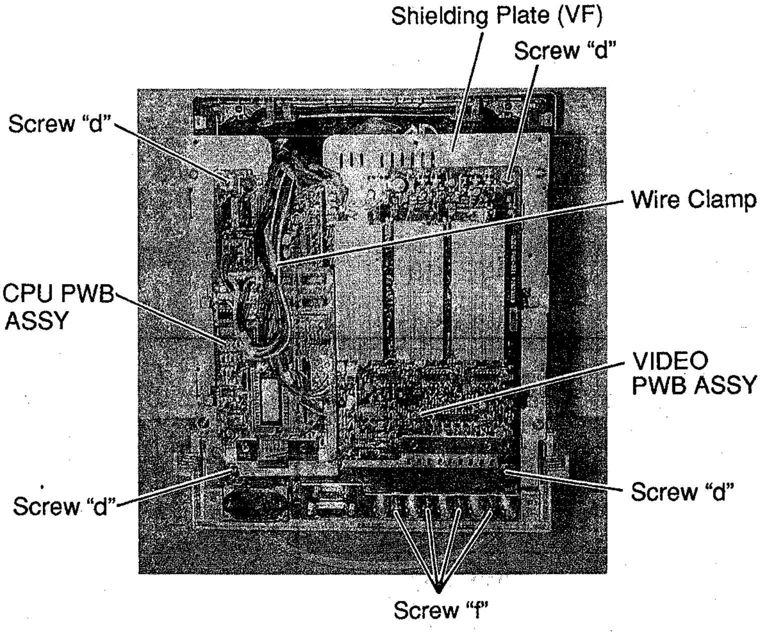
SW REG PWB ASSY (UMB/R/B (EE))	PWE-319
SW REG PWB ASSY (UMA)	PWE-341
DEF PWB ASSY	PWE-329
SDP PWB ASSY	PWE-339A
CHP PWB ASSY	PWE-339B
VIDEO PWB ASSY	PWE-352
CPU PWB ASSY	PWE-330
FOCUS PWB ASSY	PWE-328A
CRT PWB ASSY	PWE-328B
CONTROL PWB ASSY	PWE-328C
VR PWB ASSY	PWE-328D
CN PWB ASSY	PWE-328E
TR PWB ASSY	PWE-332

DISASSEMBLY OF BOARDS

VIDEO PWB ASSY (CPU PWB ASSY)

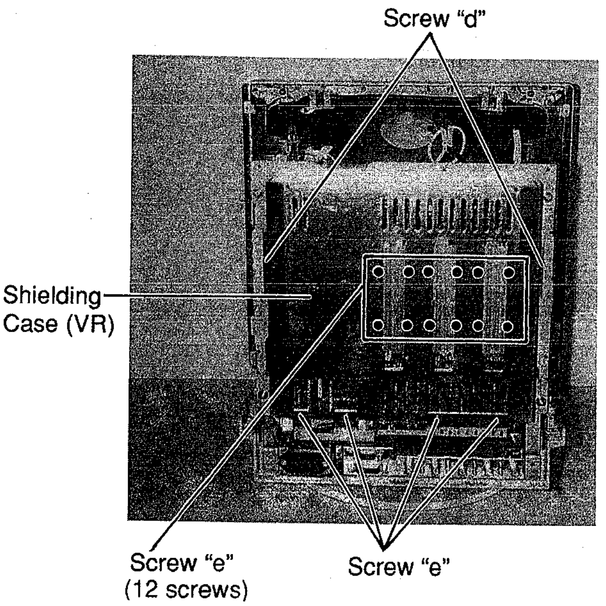

Screw "d"
Shielding Case (VR)
Screw "e" (12 screws)
Screw "e"

1. Remove the two screws "d".
2. Remove the sixteen screws "e".
3. Take off the Shielding Case (VR).

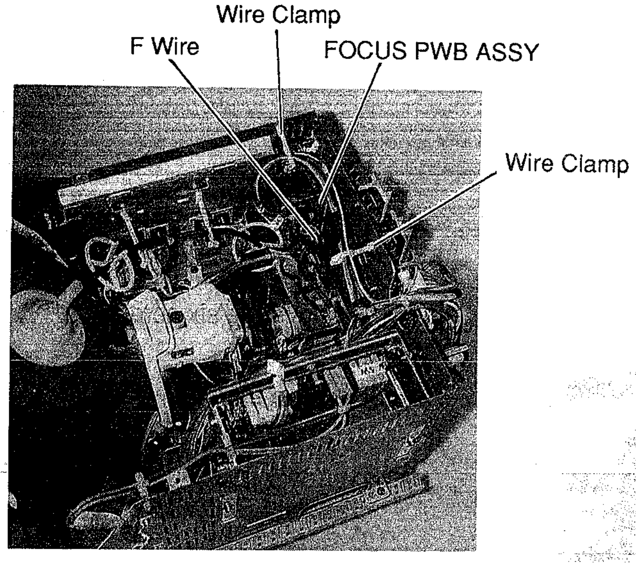

Shielding Plate (VF)
Screw "d"
Screw "d"
Wire Clamp
CPU PWB ASSY
VIDEO PWB ASSY
Screw "d"
Screw "d"
Screw "f"

4. Untie the wires from the Clamp.
5. Disconnect the connectors "CN-TX", "CN-S", "CN-C", "CN-PM", "CN-N" and "CN-P" from CPU PWB ASSY.
6. Disconnect the connectors "CN-CT", "CN-HC", "CH-BC", "CN-VF" and "CN-X" from VIDEO PWB ASSY.
7. Disconnect the connectors "CN-B", "CN-R" and "CN-G" from the CRT PWB ASSY.
8. Remove the four screws "d".
9. Remove the four screws "f".
10. Remove the VIDEO PWB ASSY (CPU PWB ASSY) from the Shielding Plate (VF).

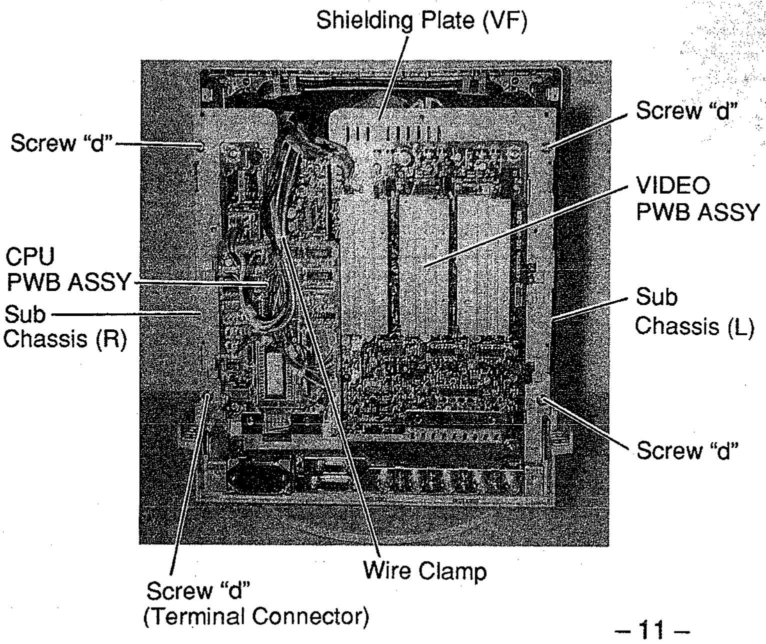
CRT PWB ASSY and DEF PWB ASSY (SDP PWB ASSY, CHP PWB ASSY)


Screw "d"
Shielding Case (VR)
Screw "e" (12 screws)
Screw "e"

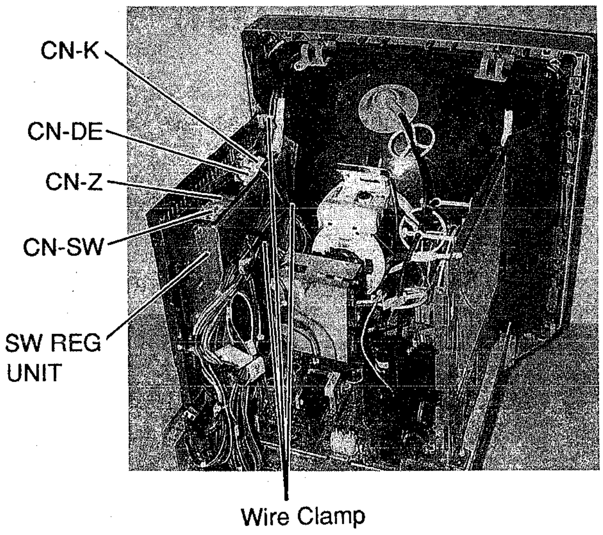
1. Remove the two screws "d".
2. Remove the sixteen screws "e".
3. Take off the Shielding Case (VR).


Wire Clamp
F Wire
FOCUS PWB ASSY
Wire Clamp

4. Disconnect the connectors "CN-B", "CN-R" and "CN-G" from the CRT PWB ASSY.
5. Untie the wires from the Clamps and take off the Barrier. (For details, see page 16 for FOCUS PWB ASSY.)
6. Disconnect the connector "CN-DF", "CN-VF" and unsolder the F wire from the FOCUS PWB ASSY.

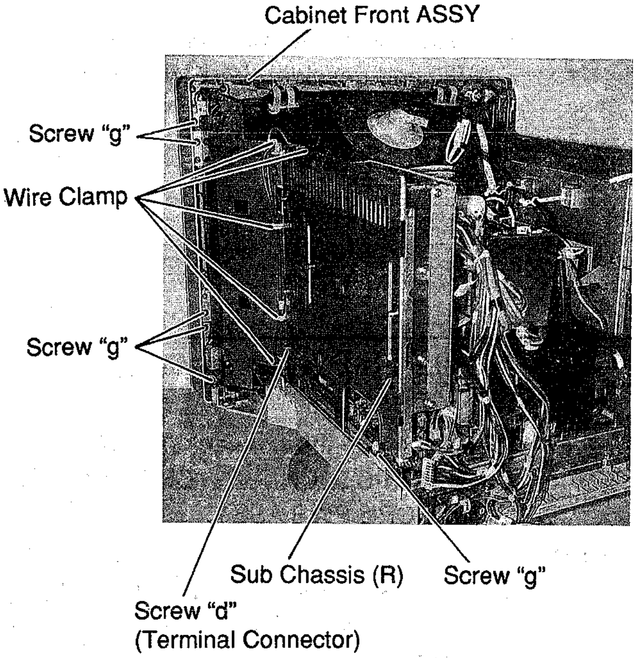

Shielding Plate (VF)
Screw "d"
Screw "d"
VIDEO PWB ASSY
CPU PWB ASSY
Sub Chassis (R)
Sub Chassis (L)
Screw "d"
Wire Clamp
Screw "d" (Terminal Connector)

7. Untie the wires from the Clamp.
8. Disconnect the connectors "CN-TX", "CN-S", "CN-C", "CN-PM", "CN-N" and "CN-P" from CPU PWB ASSY.
9. Disconnect the connectors "CN-CT", "CN-HC", "CN-BC", "CN-VF" and "CN-X" from VIDEO PWB ASSY.
10. Remove the four screws "d".
11. Remove the Shielding Plate (VF) from the Sub Chassis (L) and Sub Chassis (R).


CN-K
CN-DE
CN-Z
CN-SW
SW REG UNIT
Wire Clamp

12. Untie the wires from the Clamps.

13. Disconnect the connectors "CN-SW", "CN-Z", "CN-DE" and "CN-K" from the SW REG UNIT.

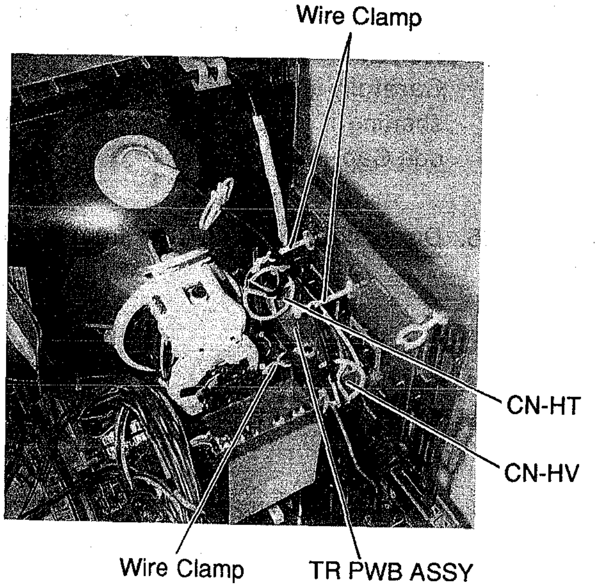

Cabinet Front ASSY
Screw "g"
Wire Clamp
Screw "g"
Sub Chassis (R)
Screw "g"
Screw "d"
(Terminal Connector)

14. Untie the wires from the Clamps.

15. Remove the six screws "g".

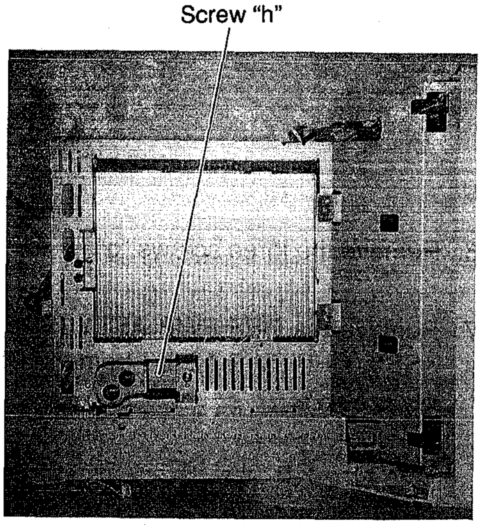
16. Remove the screw "d".

17. Remove the Sub Chassis (R) from the Cabinet Front ASSY.

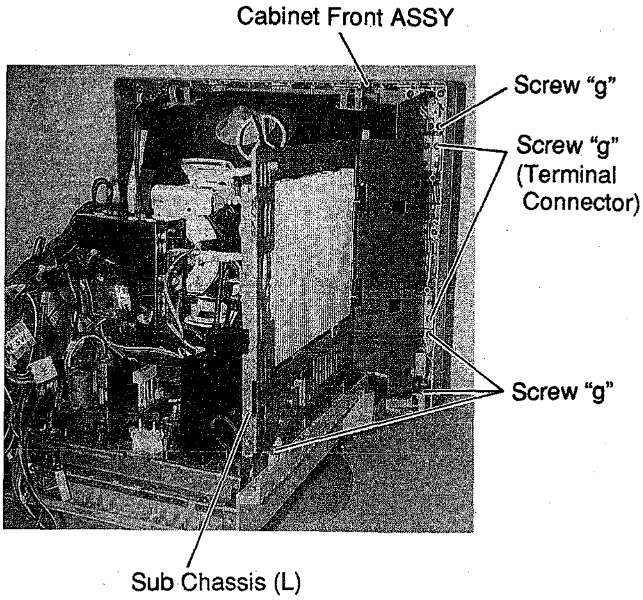

Wire Clamp
CN-HT
CN-HV
Wire Clamp
TR PWB ASSY

18. Untie the wires from the Clamps.

19. Disconnect the connectors "CN-HV" and "CN-HT" from the TR PWB ASSY.

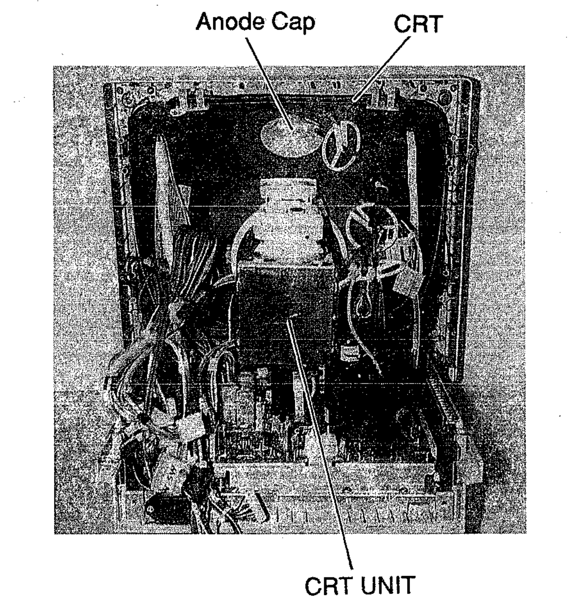


20. Remove the screw "h".


Cabinet Front ASSY
Screw "g"
Screw "g"
(Terminal
Connector)
Screw "g"
Sub Chassis (L)

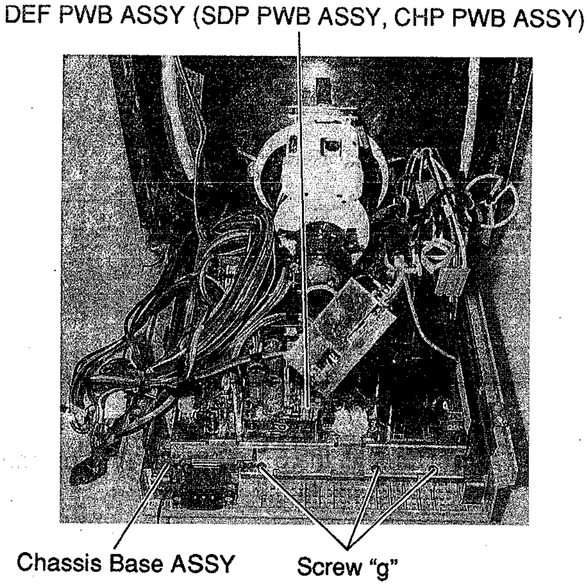
21. Remove the six screws "g".

22. Remove the Sub Chassis (L) from the Cabinet Front ASSY.


Anode Cap
CRT
CRT UNIT

24. Remove the Anode Cap from the CRT.
    NOTE:
    Carefully discharge the CRT anode by shorting it to ground before removing Anode Cap.

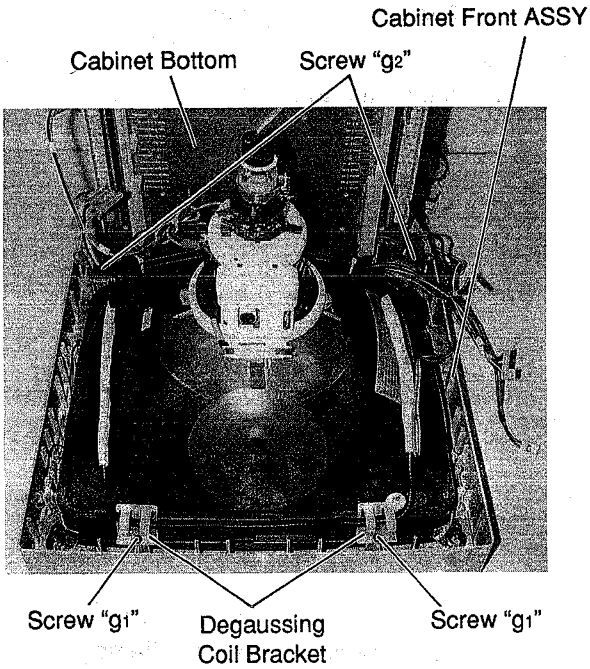
25. Disconnect the CRT UNIT from the CRT.


DEF PWB ASSY (SDP PWB ASSY, CHP PWB ASSY)
Chassis Base ASSY
Screw "g"

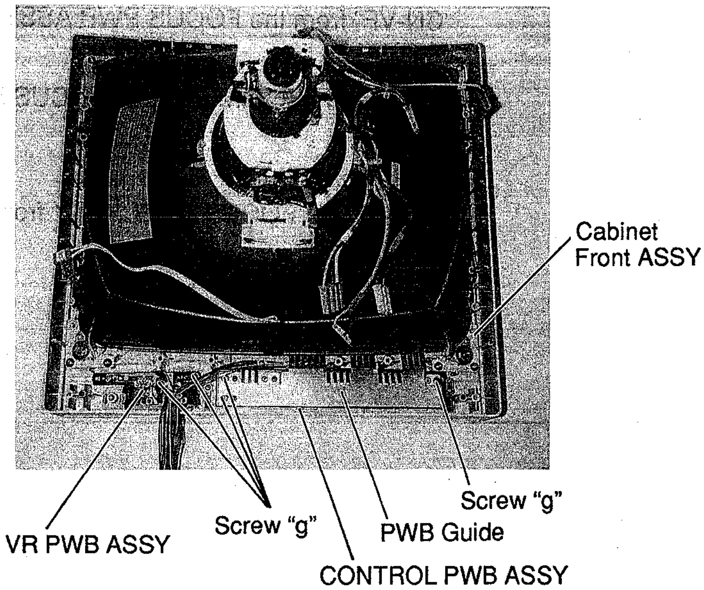
26. Remove the three screws "g".

27. Remove the DEF PWB ASSY (SDP PWB ASSY, CHP PWB ASSY) from the Chassis Base ASSY.

CONTROL PWB ASSY and VR PWB ASSY

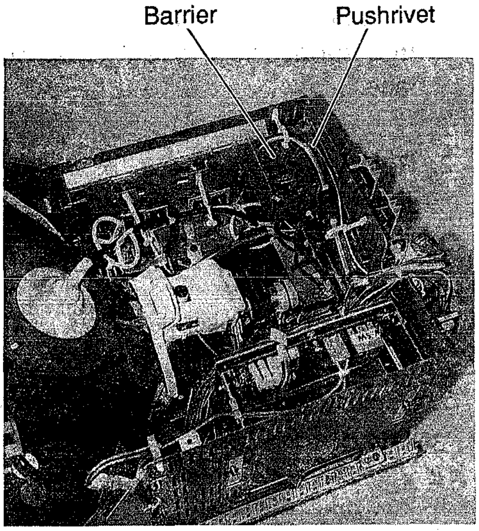

Cabinet Front ASSY
Cabinet Bottom
Screw "g2"
Screw "g1"
Degaussing Coil Bracket
Screw "g1"

1. Turn the CRT face down on a clean static free surface to Prevent scratching CRT face.
2. Remove the two screws "g1".
3. Remove the two Degaussing Coil Brackets.
4. Remove the two screws "g2".
5. Remove the Cabinet Bottom from Cabinet front ASSY.


Cabinet Front ASSY
VR PWB ASSY
Screw "g"
Screw "g"
PWB Guide
CONTROL PWB ASSY

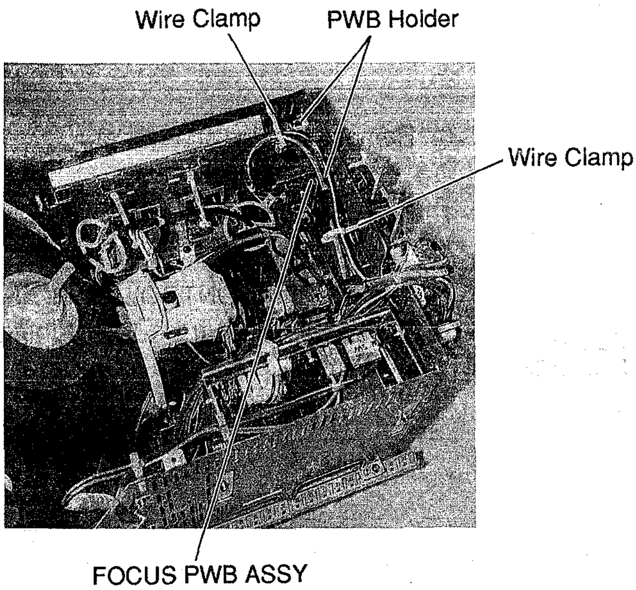
6. Remove the five screws "g".
7. Remove the PWB Guide.
8. Remove the CONTROL PWB ASSY and VR PWB ASSY from the Cabinet Front ASSY.

FOCUS PWB ASSY


Barrier
Pushrivet

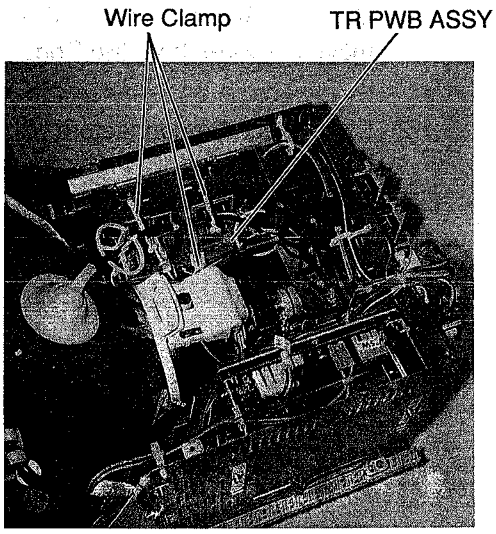
1. Remove the Pushrivet.

2. Take off the Barrier.

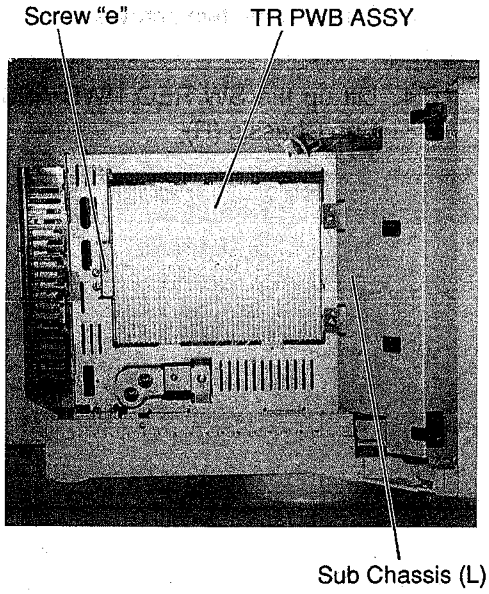

Wire Clamp
PWB Holder
Wire Clamp
FOCUS PWB ASSY

3. Untie the wires from the Clamps.
4. Disconnect the connectors "CN-DF" and "CN-VF" from the FOCUS PWB ASSY.
5. Unsolder the F Wire from the FOCUS PWB ASSY.
6. Remove the FOCUS PWB ASSY from the PWB Holders.

TR PWB ASSY

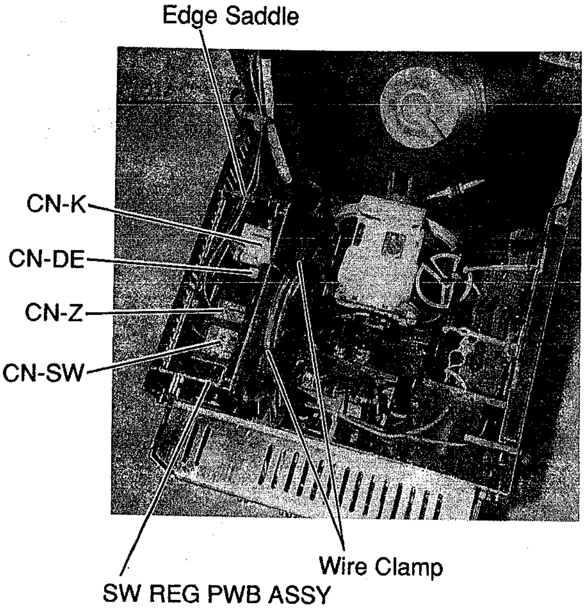

Wire Clamp
TR PWB ASSY

1. Untie the wires from the Clamps.
2. Disconnect the connectors “CN-HV” and “CN-HT” from the TR PWB ASSY.


Screw “e”
TR PWB ASSY
Sub Chassis (L)

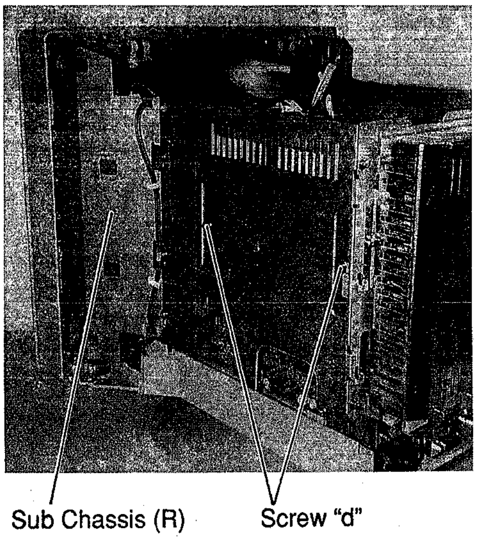
3. Remove the screw “e”.
4. Remove the TR PWB ASSY from the Sub Chassis (L).

SW REG PWB ASSY


Edge Saddle
CN-K
CN-DE
CN-Z
CN-SW
Wire Clamp
SW REG PWB ASSY

1. Untie the wires from the Clamps and remove the wires from the Edge Saddle.

2. Disconnect the connectors "CN-SW", "CN-Z", "CN-DE" and "CN-K" from the SW REG PWB ASSY.

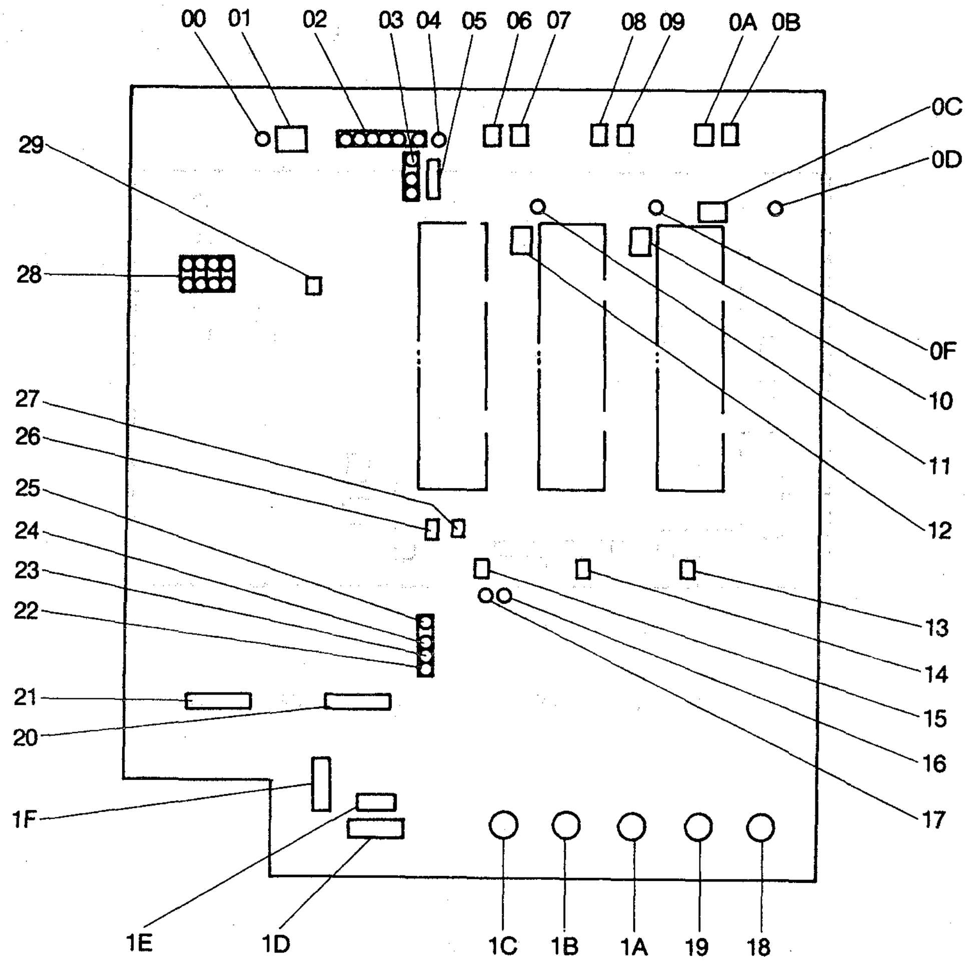

Sub Chassis (R)
Screw "d"

3. Remove the two screws "d".

4. Lift up the SW REG PWB ASSY from the Sub Chassis (R).

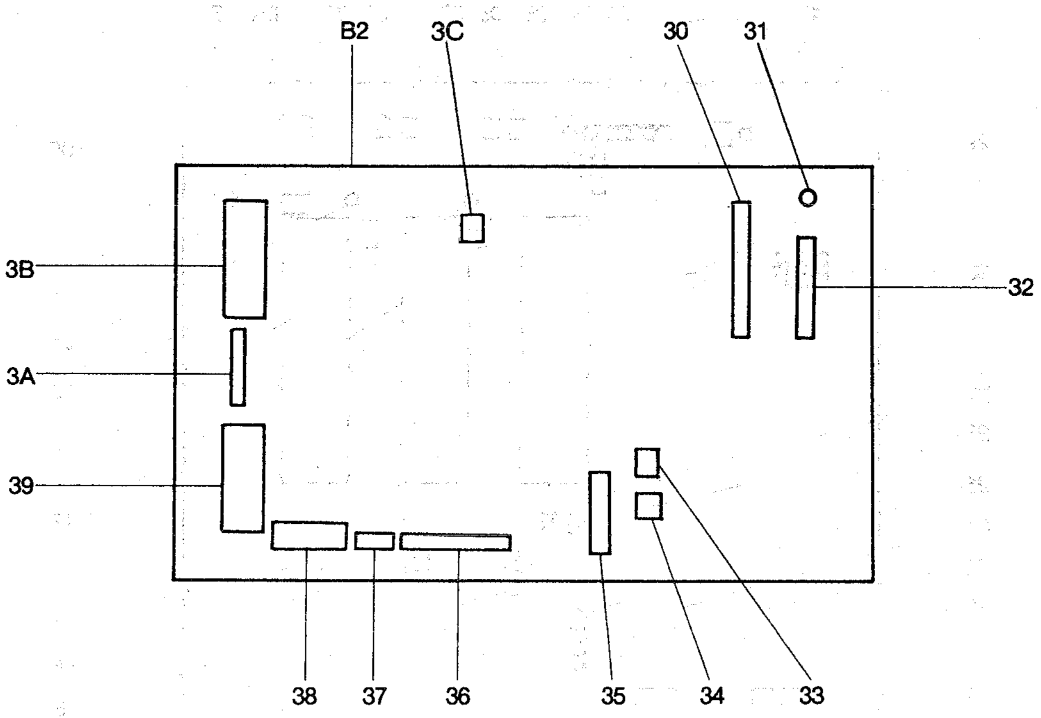
CONNECTOR, CONTROL AND TEST POINT LOCATION DIAGRAMS

VIDEO PWB ASSY


00
01
02
03
04
05
06
07
08
09
0A
0B
0C
0D
0F
10
11
12
13
14
15
16
17
18
19
1A
1B
1C
1D
1E
1F
20
21
22
23
24
25
26
27
28
29

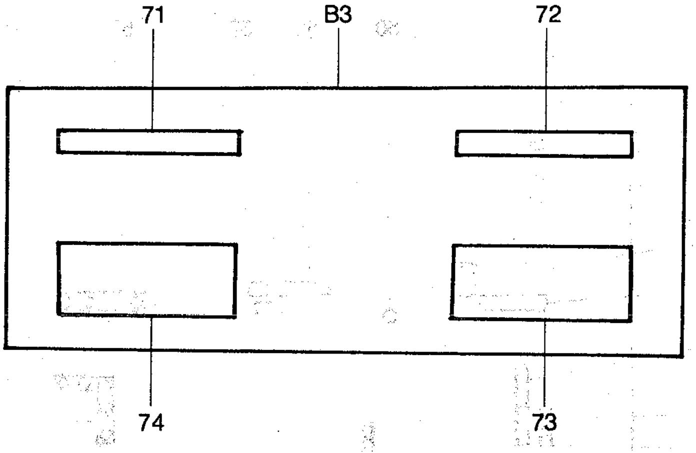
00	TP8A1 TP-12V	16	TP862 SUB GAIN
01	CN-VF	17	TP861 13V
02	CN-X	18	CONNECTOR B
03	CN-HC	19	CONNECTOR G
04	TP8A2 TP-6V	1A	CONNECTOR R
05	CN-BC	1B	CONNECTOR V
06	VR723 G SUB BRIGHT	1C	CONNECTOR H/V
07	VR720 G BIAS	1D	CONNECTOR D-SUB
08	VR724 R SUB BRIGHT	1E	CONNECTOR MINI D-SUB
09	VR721 R BIAS	1F	SW701
0A	VR725 B SUB BRIGHT	20	CN-MB
0B	VR722 B BIAS	21	CN-MA
0C	CN-BB	22	TP865
0D	TP703 TP-B	23	TP864
		24	TP863
0F	TP702 TP-R	25	TP866
10	CN-R	26	VR861 13V ADJ
11	TP-701 TP-G	27	VR860 SUB GAIN
12	CN-G	28	CN-CT1~CT4
13	VR703 B GAIN	29	VR8A1 +12V ADJ
14	VR702 R GAIN	B1	VIDEO PWB ASSY (PWE-352)
15	VR701 G GAIN		

CPU PWB ASSY


B2
3C
30
31
3B
32
3A
39
38
37
36
35
34
33

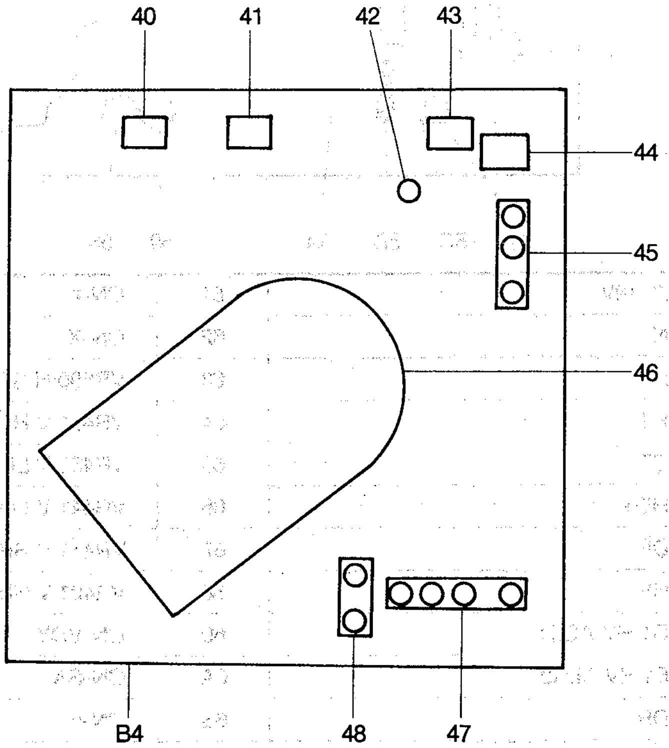
30	CN-N	3A	CN-TX
31	TP-DAC	3B	CN-MA
32	CN-P	3C	CN-PM
33	VR801 REF-U	B2	CPU PWB ASSY (PWE-330)
34	VR802 REF-L		
35	TP-AUTO		
36	CN-C		
37	CN-S		
38	TP-ADJ		
39	CN-MB		

CN PWB ASSY


71
B3
72
74
73

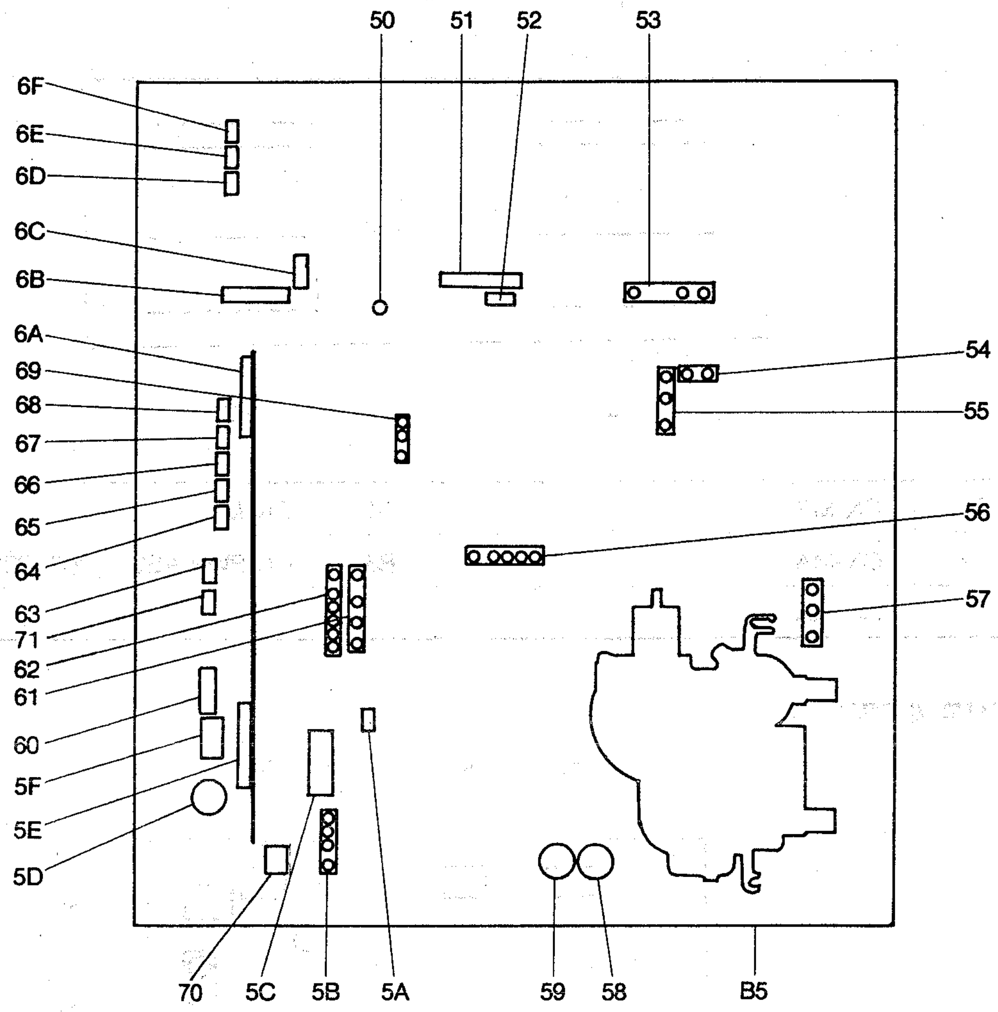
71	CN-MB	74	CN-MB
72	CN-MA	B3	CN PWB ASSY (PWE-328E)
73	CN-MA		

CRT PWB ASSY


40
41
42
43
44
45
46
B4
48
47

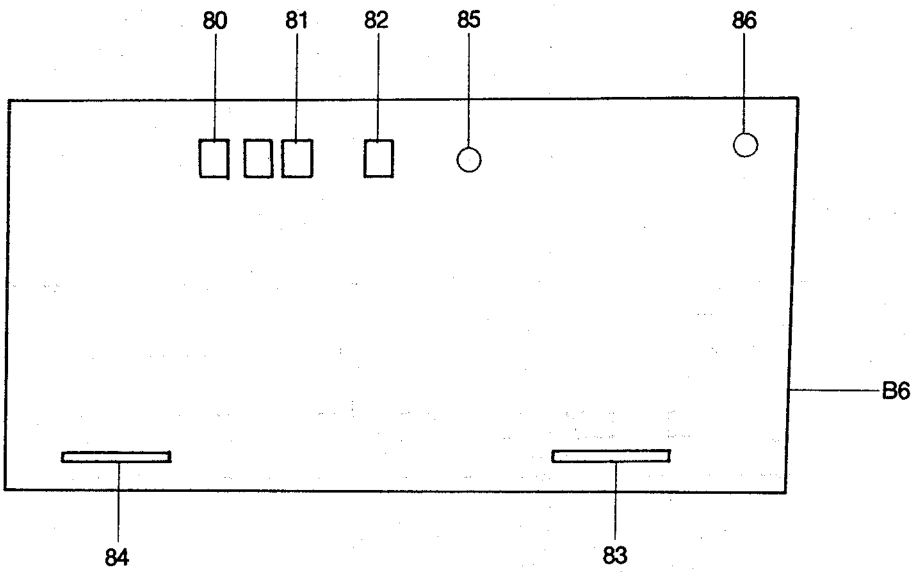
40	CN-B/CN-BB	45	CN-HC
41	CN-R	46	CRT SOCKET
42	TP901	47	CN-E
43	CN-G	48	CN-CE
44	VR901 SUB BIAS	B4	CRT PWB ASSY (PWE328B)

DEF PWB ASSY


50
51
52
53
6F
6E
6D
6C
6B
6A
69
68
67
66
65
64
63
71
62
61
60
5F
5E
5D
54
55
56
57
70
5C
5B
5A
59
58
B5

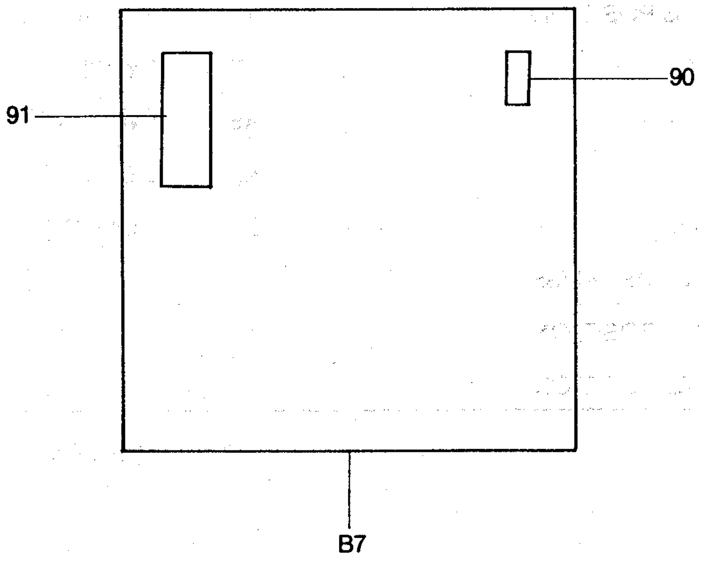
50	TP471 18V	61	CN-K
51	CN-N	62	CN-X
52	CN-S	63	VR590 H SIZE
53	CN-HT	64	VR401 V HOLD
54	CN-CT	65	VR431 V LIN (C)
55	CN-HDY	66	VR441 V LIN (S)
56	CN-DF	67	VR411 V BIAS
57	CN-HV	68	VR421 V HEIGHT
58	VR5D1 HV ADJ1	69	CN-VDY
59	VR5E1 HV ADJ2	6A	CN-SA
5A	CN-DR	6B	CN-P
5B	CN-E	6C	VR461
5C	CN-CP	6D	VR56C H HOLD 3
5D	VR2001 PROTECTOR	6E	VR56E H HOLD 2
5E	CN-SB	6F	VR56A H HOLD 1
5F	CN-TP	70	CN-PM
60	SW401 CUTOFF ADJ	71	CN-SC
		B5	DEF PWB ASSY (PWE-329)

SDP PWB ASSY


80
81
82
85
86
B6
84
83

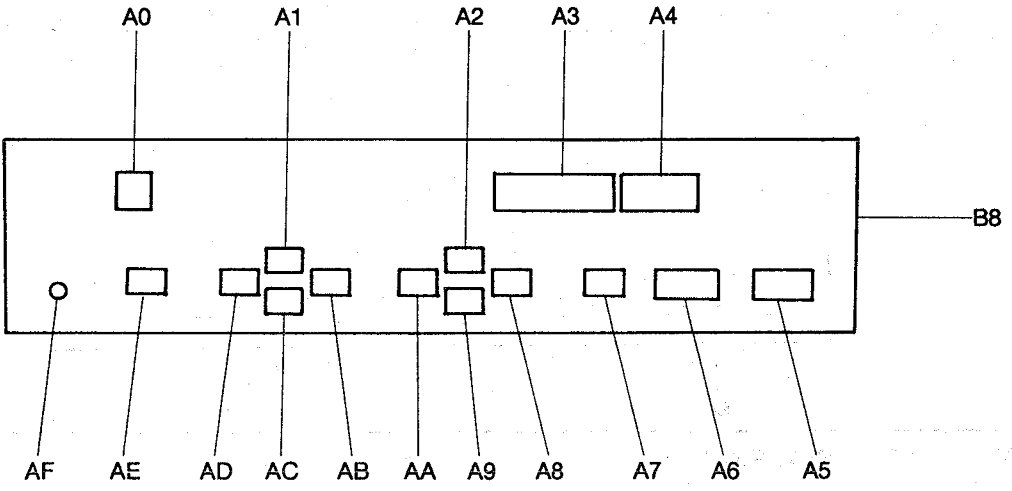
80	VR5S2 SIDE PIN 1	85	CN-SC 1
81	VR5W1 PARALELL	86	CN-SC 2
82	VR5U1 SIDE PIN 3	B6	SDP PWB ASSY (PWE-339A)
83	CN-SB		
84	CN-SA		

CHP PWB ASSY



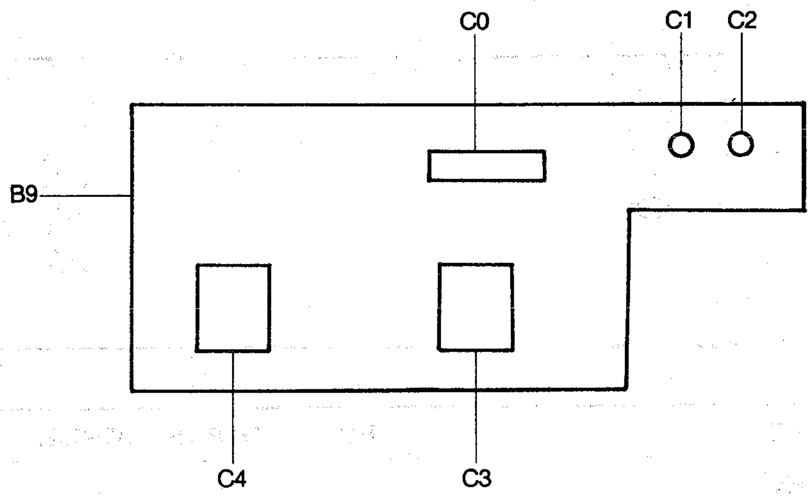
90	CN-DR	B7	CHP PWB ASSY (PWE-339B)
91	CN-CP		

CONTROL PWB ASSY


A0
A1
A2
A3
A4
B8
AF
AE
AD
AC
AB
AA
A9
A8
A7
A6
A5

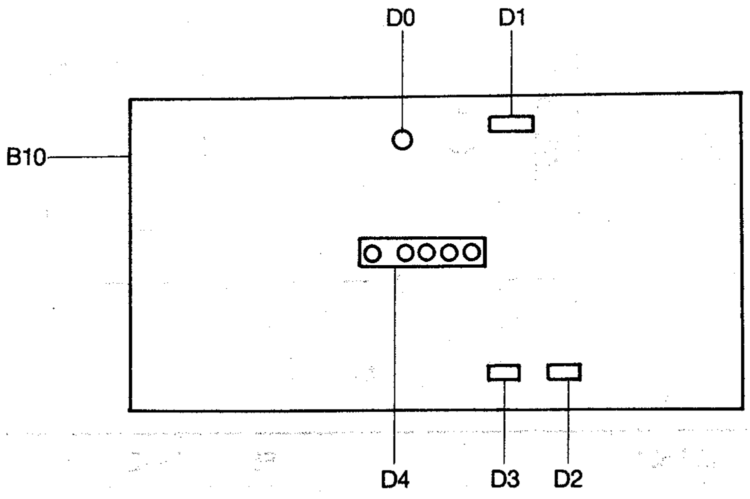
A0	CN-DE	AA	SW106 POSITION
A1	SW105 SIZE	AB	SW109 SIZE
A2	SW103 POSITION	AC	SW104 SIZE
A3	CN-C	AD	SW108 SIZE
A4	CN-TX	AE	SW110 MEMORY RECALL
A5	SW111	AF	LED D120 MODE STATUS
A6	SW112	B8	CONTROL PWB ASSY (PWE-328C)
A7	SW101 DEGAUSS		
A8	SW107 POSITION		
A9	SW102 POSITION		

VR PWB ASSY


C0
C1
C2
B9
C4
C3

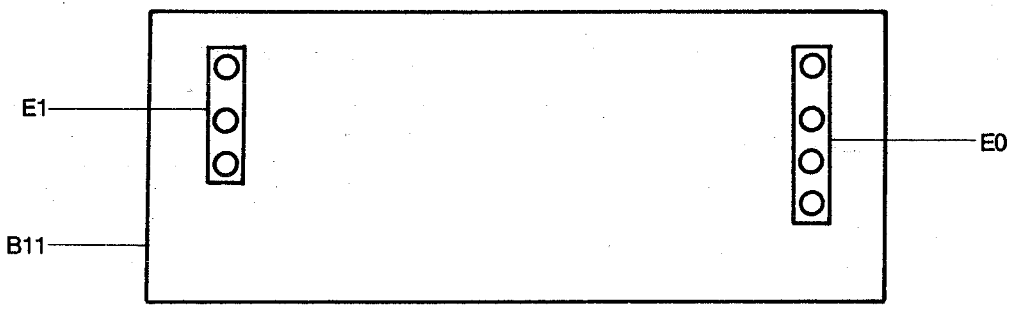
C0	CN-BC	B9	VR PWB ASSY (PWE-328D)
C1	LED D121 POWER		
C2	LED D122 POWER		
C3	VR102 BRIGHTNESS		
C4	VR101 CONTRAST		

FOCUS PWB ASSY


D0
D1
B10
D4
D3
D2

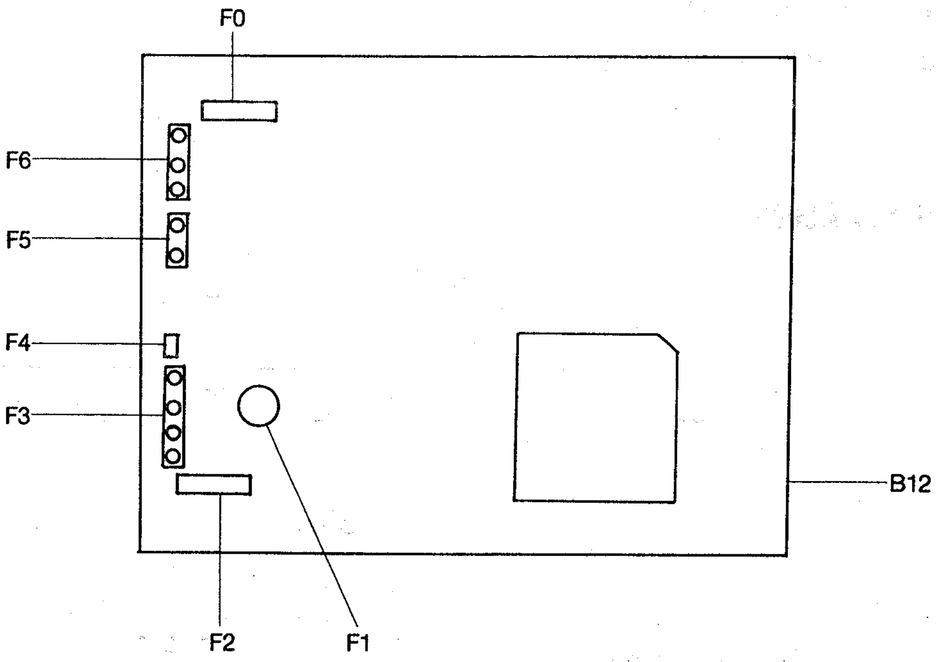
D0	F WIRE TP951	B10	FOCUS PWB ASSY (PWE-328A)
D1	CN-VF		
D2	VR951 H FOCUS		
D3	VR952 V FOCUS		
D4	CN-DF		

TR PWB



E0	CN-HT	B11	TR PWB (PWE-332)
E1	CN-HV		

SW REG PWB ASSY


F0
F6
F5
F4
F3
B12
F2
F1

F0	FUSE F601	F5	CN-Z
F1	VR651	F6	CN-SW
F2	FUSE F651	B12	SW REG PWB ASSY PWE-341 (JC-1741UMA-3, (N)) PWE-319 (JC-1741UMB-3/B-3(EE) /R-3)
F3	CN-K		
F4	CN-DE		

ADJUSTMENT PROCEDURE

See pages 39 and 40 for jig

Standard Adjustment Conditions

1) Power source voltage : JC-1741UMA-3,(N) AC120V,60Hz
JC-1741UMB-3/B-3(EE)/R-3 AC220V,50Hz
2) Warm up : Adjust after leaving power on for a minimum of thirty minutes
3) Signals :
Video : Analog 0.7Vp-p 75Ω terminal positive polarity
Analog sync on green
Video : 0.7Vp-p
Synchronizing : 0.3Vp-p
Sync : TTL level Negative/Positive polarity
Separate/composite
Deflection frequency : H 27kHz~79kHz
V 55Hz~90Hz
Unless otherwise specified, connect signal 10 to D-SUB 15 pin then perform adjustments.

1. Adjustment (Production Line Procedure)

1) Initial Setting

The following VRs should be turned on after setting them in the specified position upon turning on the power.

a) DEF PWB
VR590 (H SIZE) : Fully counterclockwise (MIN)
VR5D1 (H V ADJ 1) : Fully counterclockwise (MIN)
VR5E1 (H V ADJ 2) : Fully counterclockwise (MIN)
VR56A (H HOLD 1) : Mechanical center
VR56E (H HOLD 2) : Mechanical center
VR56C (H HOLD 3) : Mechanical center
VR2001 (HV PROTECTOR) : Fully counterclockwise (MIN)
VR461 (18V ADJ) : Fully counterclockwise (MIN)
VR411 (V BIAS) : Mechanical center
SCREEN : Fully counterclockwise (MIN)
VR401 (V HOLD) : Mechanical center
SW401 (CUT OF ADJ) : To the left (OPEN)

b) VIDEO PWB
VR8A1 (12V ADJ) : Mechanical center
VR861 (13V ADJ) : Fully counterclockwise (MIN)

2. Pre-adjustment of DEF PWB (Production Line Procedure)

1) 18V Adjustment
a) Connect 29V power.
b) Adjust TP471 (18V) until it becomes 18V±0.05V DC using VR461.
* Care should be taken to ensure that TP471 (18V) does not exceed 20V.

3. Pre-adjustment of VIDEO PWB (Production Line Procedure)

1) 12V Adjustment
a) Apply +29V±0.1V DC between X3 (+29V) and X6.
b) Apply H Sync (signal 12.56kHz) to X4.
c) Apply a load in excess of 200±10% 5W between HC2 and HC3.
d) Adjust TP-12V until it is 12V±0.05V DC using VR8A1.(12V ADJ)

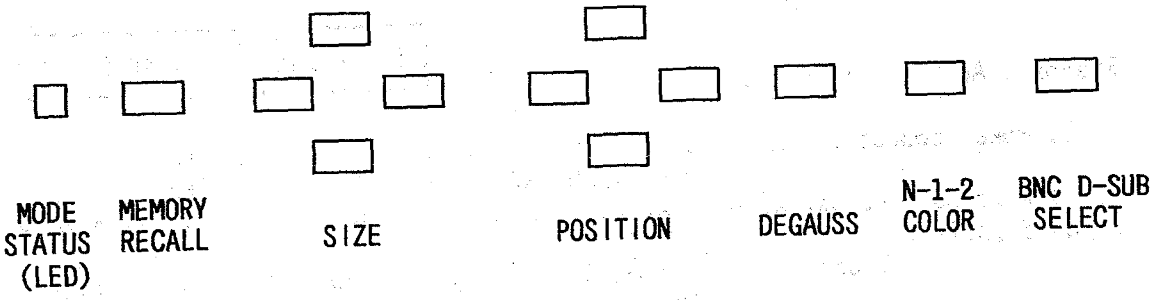
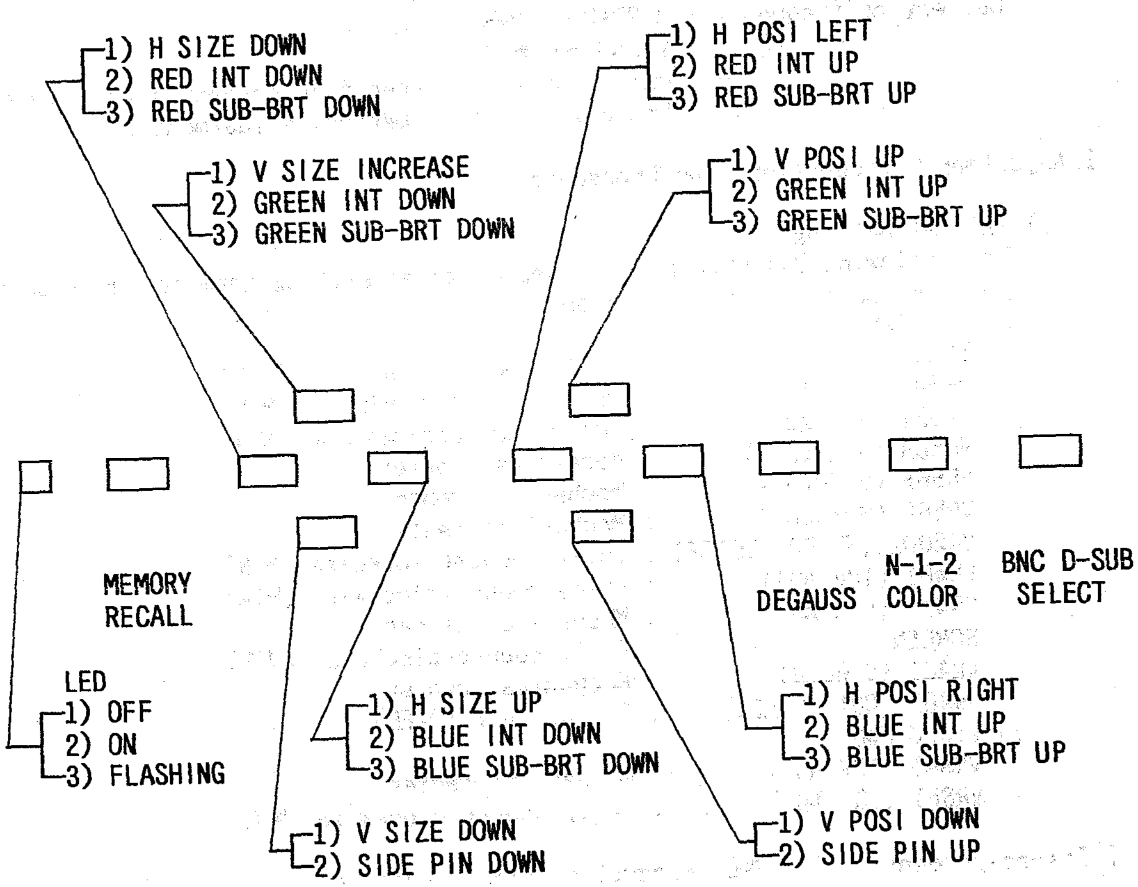

MODE
STATUS
(LED)
MEMORY
RECALL
SIZE
POSITION
DEGAUSS
N-1-2
COLOR
BNC D-SUB
SELECT

Fig.1-a Control panel


1) H SIZE DOWN
2) RED INT DOWN
3) RED SUB-BRT DOWN
1) V SIZE INCREASE
2) GREEN INT DOWN
3) GREEN SUB-BRT DOWN
1) H POSI LEFT
2) RED INT UP
3) RED SUB-BRT UP
1) V POSI UP
2) GREEN INT UP
3) GREEN SUB-BRT UP
MEMORY
RECALL
DEGAUSS
N-1-2
COLOR
BNC D-SUB
SELECT
LED
1) OFF
2) ON
3) FLASHING
1) H SIZE UP
2) BLUE INT DOWN
3) BLUE SUB-BRT DOWN
1) H POSI RIGHT
2) BLUE INT UP
3) BLUE SUB-BRT UP
1) V SIZE DOWN
2) SIDE PIN DOWN
1) V POSI DOWN
2) SIDE PIN UP

NOTE 1): User control level 1
2): User control level 2
3): User control level 3

Fig.1-b User control switch function

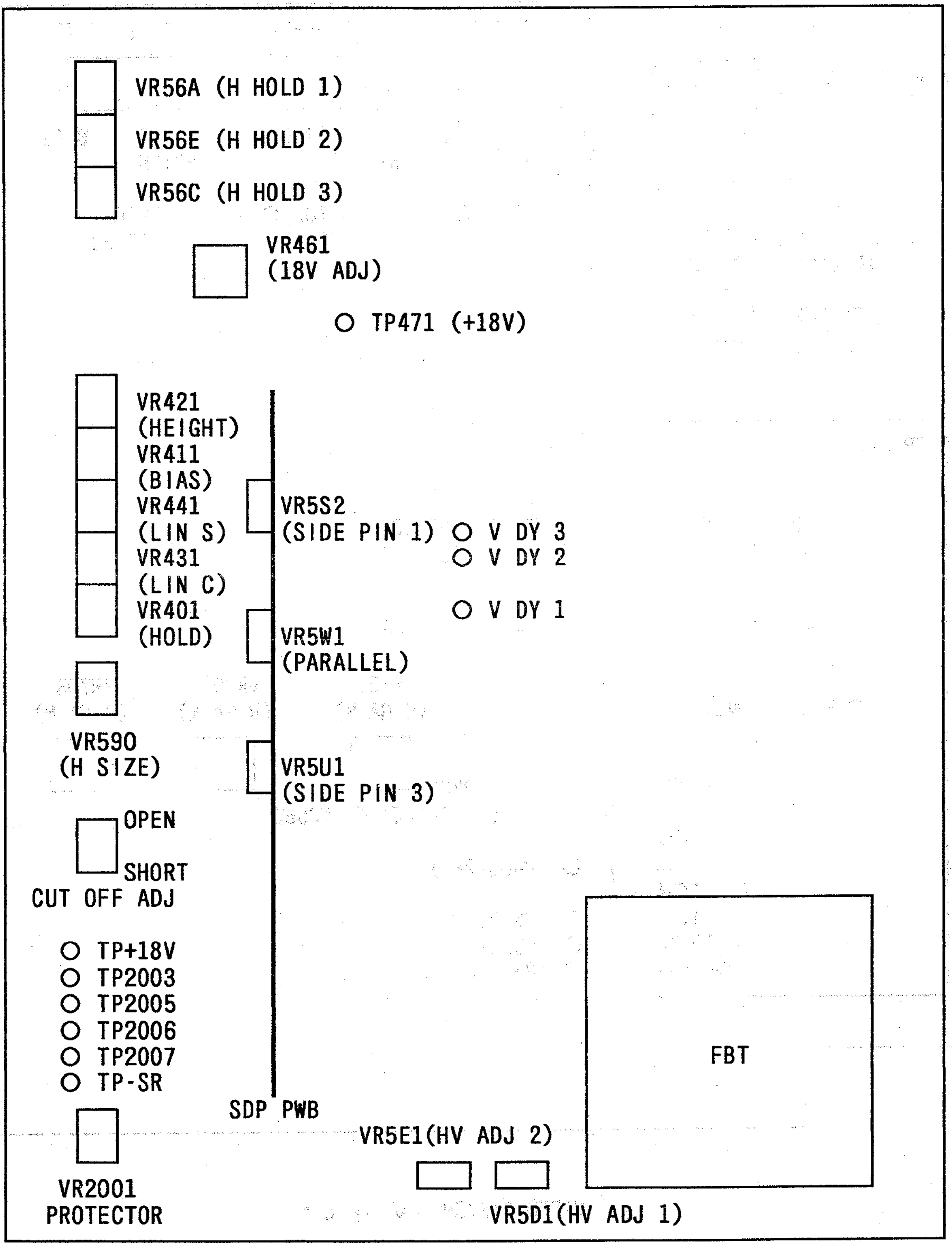

VR56A (H HOLD 1)
VR56E (H HOLD 2)
VR56C (H HOLD 3)
VR461
(18V ADJ)
TP471 (+18V)
VR421
(HEIGHT)
VR411
(BIAS)
VR441
(LIN S)
VR431
(LIN C)
VR401
(HOLD)
VR5S2
(SIDE PIN 1)
V DY 3
V DY 2
V DY 1
VR5W1
(PARALLEL)
VR590
(H SIZE)
VR5U1
(SIDE PIN 3)
OPEN
SHORT
CUT OFF ADJ
TP+18V
TP2003
TP2005
TP2006
TP2007
TP-SR
SDP PWB
VR5E1(HV ADJ 2)
FBT
VR2001
PROTECTOR
VR5D1(HV ADJ 1)

Fig.2 DEF PWB Layout

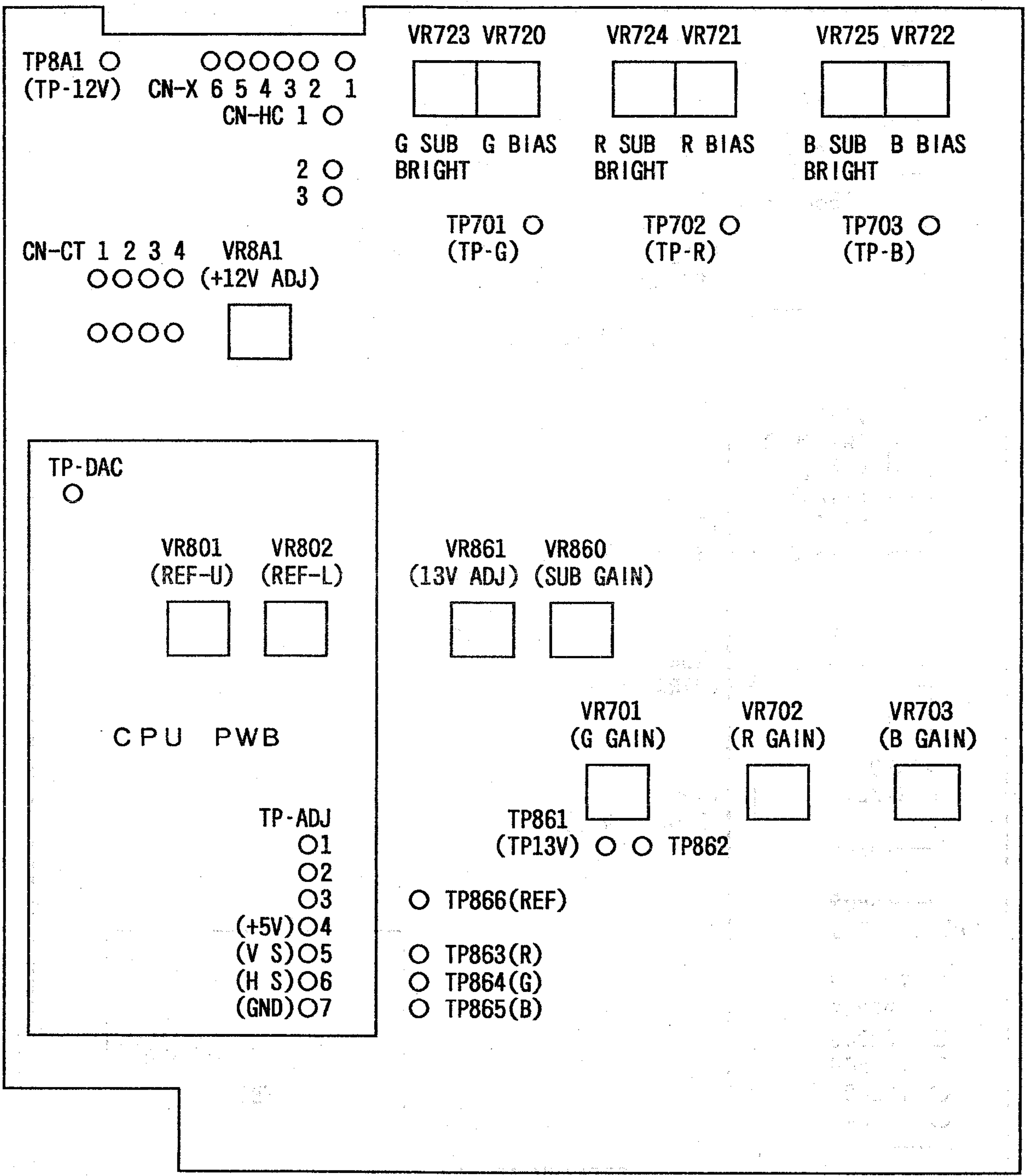

TP8A1
(TP-12V)
CN-X 6 5 4 3 2 1
CN-HC 1
2
3
CN-CT 1 2 3 4
VR8A1
(+12V ADJ)
VR723 VR720
G SUB BRIGHT
G BIAS
VR724 VR721
R SUB BRIGHT
R BIAS
VR725 VR722
B SUB BRIGHT
B BIAS
TP701
(TP-G)
TP702
(TP-R)
TP703
(TP-B)
TP-DAC
VR801
(REF-U)
VR802
(REF-L)
CPU PWB
TP-ADJ
1
2
3
(+5V) 4
(V S) 5
(H S) 6
(GND) 7
VR861
(13V ADJ)
VR860
(SUB GAIN)
VR701
(G GAIN)
VR702
(R GAIN)
VR703
(B GAIN)
TP861
(TP13V)
TP862
TP866(REF)
TP863(R)
TP864(G)
TP865(B)

Fig.3 VIDEO PWB/CPU PWB Layout

4.Main Adjustment (Service adjustment)

1) Controls Setting

Unless otherwise specified,make adjustments with the following settings :

VR101 CONTRAST VR : MAX (fully counterclockwise)
VR102 BRIGHTNESS VR : Position at which the back raster just disappears
SW111 BNC/D-SUB SW : D-SUB
SW112 COLOR MODE SW : N
SW701 SYNC SW : OFF (Lower position)

2) 13V Adjustment Signal 2 27kHz

a) Adjust TP861 (TP-13V) to 13±0.1V DC using VR861.

3) DAC Reference Voltage Adjustment Signal 2,3

a) Receive signal 3 (79.0kHz).
b) Adjust TP-DAC (H-f/V output) voltage to 11.00±0.05V DC using VR801.
C) Receive signal 2 (27kHz).
d) Adjust TP-DAC (H-f/V output) voltage to 1.00±0.05V DC using VR802.

4) V HOLD Adjustment

a) Short pin ⑤ of TP-ADJ (V S) with pin ⑦ (GND) of TP-ADJ on the CPU PWB.
b) Adjust V DY 1 to 40±0.5Hz using VR401 (V HOLD).
c) Release short pin ⑤ of TP-ADJ with pin ⑦ of the same.

5) Horizontal Free Run Adjustment

a) Short pin ⑥ of TP-ADJ with pin ⑦ (GND) of TP-ADJ on the CPU PWB.
b) Receive signal 13 (64.3kHz) and adjust VR56A (H HOLD 1) so that there is one image.
C) Receive signal 1 (44.0kHz) and adjust VR56E (H HOLD 2) so that there is one image.
d) Receive signal 4 (31.5kHz) and adjust VR56C (H HOLD 3) so that there is one image.
e) Open pin ⑥ of TP-ADJ with pin ⑦ (GND) of TP-ADJ.

6) High Voltage Adjustment (Production Line Procedure) Signal 2 27kHz

a) Receive the all black image.
b) Turn brightness VR,contrast VR and the screen VR fully counterclockwise.
c) Turn VR5D1 (H V ADJ 1) to adjust high voltage to 24.0±0.3kV.
d) Turn VR5D1 (H V ADJ 2) to adjust high voltage to 25.0±0.3kV.
* When adjusting VR501,turn VR5E1 fully counterclockwise (MIN).

NOTE: After adjusting VR5D1 and VR5E1,seal these caps (74004891) with silicone glue to meet DHHS requirements.

7) High Voltage Protector Adjustment (Production Line Procedure) Signal 2 27kHz

a) Receive the all black image.
b) Turn the brightness VR and contrast VR fully counterclockwise (MIN).
C) Turn VR2001 (protector) to adjust the voltage between TP2006 and TP2007 to ±0.05V.

NOTE: After adjusting VR2001,seal the cap (74004891) with silicon glue to meat DHHS requirements.

8) Horizontal Raster Centering Adjustment   Signal 12

a) Receive the all black image.
b) Adjust both the screen VR and the BRIGHTNESS VR so that the back raster is visible.
c) Replace the CN-CT connector to center the image on the CRT.

CT-1 Do not move.
CT-2 Move about 3mm.
CT-3 Move about 6mm.
CT-4 Move about 10mm.

* The direction moves to the right or to the left depending upon placement of the connector insertion.
* Precise adjustment can be made by increasing the raster size fully to the bezel or CRT display area.(Raster size < CRT display areas.)

9) Horizontal Width Adjustment   Signal 15

a) Receive signal 15 (78.8kHz),all white raster pattern.
b) Adjust the vertical amplitude to about 220mm with the V SIZE SWITCH (user control).
   * When the vertical amplitude cannot be adjusted to 220mm,make adjustment by using VR421 (V HEIGHT).
   Also,make coarse adjustment of side pin distortion using VR5S2 (side pin).
c) Set the horizontal amplitude to MAX position with the H SIZE SWITCH (user control).
d) Adjust the horizontal image size fully to the bezel (316mm±3mm) using VR590 (H SIZE VR).

10) Side Pin Adjustment   Signals 5,8,11,12,13 and 15

* The user control level must be 1.
(Make sure that the mode status LED is off.)

a) Short TP-ADJ pins ① with pin ④ and push MEMORY RECALL SWITCH for two seconds.
b) Release the short between pin TP-ADJ pins ① and ④ and of TP-ADJ and receive signal 12,all white raster pattern.
c) Adjust the vertical image size to about 217mm with the V SIZE SWITCH (user control) and VR421 (V HEIGHT) and the horizontal image size to about 290mm with the H SIZE SWITCH (user control).
d) Adjust the side pin distortion to within 1mm using VR5S2 (side pin ①).

   * When the balance between left and right side pin distortion is not even, turn VR5U1 (side pin ①) until the distortion is even on both sides to the image.
e) Receive signals 5,8,11,13 and 15 and adjust the image size to nearly free set size.Then,check to be sure that pin distortion is within 1mm (-1mm < X).
f) Make the following adjustment for the signals whose pin distortion is not set to within 1mm.
g) Short TP-ADJ pins ③ and ④.
h) Push the H POS RIGHT SWITCH while holding the degauss switch to adjust the user control level 2.(The mode status LED lights.)
i) Adjust the pin distortion of each signal to below 1mm using the side pin UP/DOWN SWITCH and push MEMORY RECALL SWITCH for two seconds.
j) Release the short between TP-ADJ pin ③ and ④.
K) Push the V POS UP SWITCH while holding the degauss switch to put the user control level back to 1.

11) Image Distortion Adjustment

a) Adjust VR5W1 (Parallel) to the mechanical center.
b) Receive the crosshatch pattern of signal 12.
c) Turn VR5W1 until the vertical and horizontal lines crisscross each other at 90° in the screen's center.
* Care should be taken as the image size and image distortion adjustment mutually affect each other.
CAUTION : Because signals 11,12,13 and 14 mutually affect one another, check repeatedly.

12) Vertical Bias Adjustment Signal 13

a) Receive signal 13 (all white raster).
b) Adjust the screen image to come to the center using the V POSI SWITCH (user control).
c) Adjust the amplituide on the screen to 220mm±5mm using the V SIZE SWITCH.
d) Adjust the V DY 3 to 15±0.2V DC using the VR411 (V BIAS).

13) Vertical Linearity Adjustment Signals 8,9,13

a) Receive a crosshatch pattern of signal 13.
b) Check to be sure that VR431 (V LIN C) is set in the mechanical center.
c) Adjust VR441 (V LIN S) until the linearity on the upper part of the screen and that in the center become the same.
d) Adjust the linearity at the lower part of the screen and that in the center until they become the same using VR431 (V LIN C).
e) Repeat steps c) and d) above until the linearity at the upper of the screen,that in the center,and that at the lower part of the screen become the same.
f) Receive the crosshatch pattern of signals 8 and 9 and check to be sure that the linearity is within ±6%.

14) Vertical Amplitude Adjustment

a) Receive the all white raster pattern of signal 4.
b) Adjust the V SIZE until it is set to the MAX position using the V SIZE SWITCH (user control).
c) Adjust the amplitude on the screen until it is set fully to the bezel (237±3mm) using the VR421 (V HEIGHT).

15) Preset Adjustment (H SIZE,H POSI,V SIZE and V POSI)

* The user control level must be 1.
(Make sure that the mode status LED is off.)
a) Short pins ①,②,③ and ④ push MEMORY RECALL SWITCH for two seconds. (Self-correction plug resetting)
b) Release the TP-ADJ pin ① short.
C) Make the following adjustment and operation of each signal given in table 1.
  Ⅰ) Adjust the received screen image until it becomes the value given in table 1,using H SIZE SWITCH (user control) and V SIZE SWITCH (user control).
  Ⅱ) Adjust the received screen image until a distance between the left and right bezel display screen is within 1mm in the preset screen image size,using the H POSI SWITCH (user control) and the V POSI SWITCH (user control).
  Ⅲ) Push MEMORY RECALL SWITCH for two seconds.
d) Release the short at TP-ADJ pins ②,③ and ④.

Computer Preset Signals and Sizes

Signal	Contents	Horizontal Width	Vertical Height
4	VGA350 31.5kHz 70Hz (Separate Sync H:Positive V:Negative)	290±2mm	217±2mm
5	VGA400 31.5kHz 70Hz (Separate Sync H:Negative V:Positive)	290±2mm	217±2mm
6	VGA480 31.5kHz 60Hz (Separate Sync H:Negative V:Negative)	290±2mm	217±2mm
7	MAC-Ⅱ 35kHz 66.7Hz (Sync on green)	290±2mm	217±2mm
8	8514A 35.5kHz 87Hz (Separate Sync interlace)	290±2mm	217±2mm
9	800*600 35kHz 56Hz (Separate Sync)	290±2mm	217±2mm
10	800*600 48kHz 72Hz (Separate Sync)	290±2mm	217±2mm
11	1024*768 MVA1024 48.5kHz 60Hz (Separate Sync)	290±2mm	217±2mm
12	1024*768 56.5kHz 70Hz (Separate Sync)	290±2mm	217±2mm
13	1280*1024 64.3kHz 60Hz (Sync on green)	275±2mm	220±2mm
15	1280*1024 78.8kHz 74Hz (Sync on green)	275±2mm	220±2mm

16) Video Size Adjustment

NOTE: Check to be sure that the video signals are as indicated below:

a) VR Initial setting

VR701～VR703 GAIN VR : Fully counterclockwise (MIN).
VR860 SUB GAIN VR : Fully counterclockwise (MIN).
VR720～VR722 BIAS VR : Fully counterclockwise (MIN).
VR723～VR725 SUB BRIGHT VR : Fully counterclockwise (MIN).
SCREEN VR : Fully counterclockwise (MIN).
VR901 (CRT PWB) SUB BIAS VR : Fully counterclockwise (MIN).

b) Sub Gain Adjustment Signal 16 (78.8kHz Window Pattern)

* Check to the be sure that the user level is 1.

Ⅰ) Set the color mode switch to 1 position.
Ⅱ) Turn the control VR fully clockwise (MAX) and the brightness VR fully counterclockwise.
Ⅲ) On the CPU PWB short TP-ADJ pins ② and ④.
Ⅳ) Push MEMORY RECALL SWITCH for two seconds.
Ⅴ) Release the short at TP-ADJ pins ② and ④.
Ⅵ) Turn VR860 fully clockwise until TP862 is 2.7±0.03V.

c) Gain Adjustment Signal 16 (78.8kHz Window Pattern)

Ⅰ) Keep the state of b).
Ⅱ) Receive the window pattern of signal 1.
Ⅲ) Adjust TP701 (TP-G),TP702 (TP-R),and TP703 (TP-B) on the Video PWB to 50Vp-p,using VR701 (G GAIN),VR702 (R GAIN) and VR703 (B GAIN),respectively.
Ⅳ) When 50Vp-p cannot be attained in any case,turn VR850 until the smallest size attain 50Vp-p,using VR703 (B GAIN).
Then,make readjust as from step Ⅲ).Make readjustment if not as set.

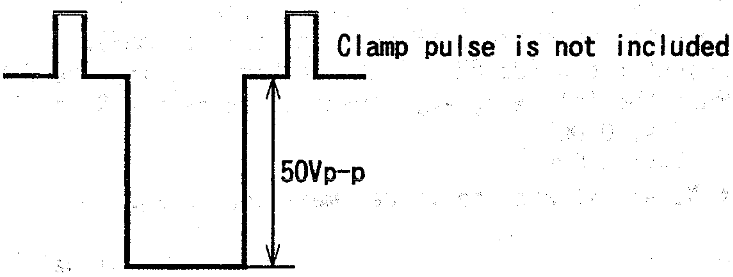


Fig.4 Waveform of TP R,G and B

17) Cut-off Adjustment Signal 16 (78.8kHz Window Pattern)

a) VR Initial Setting

VR720～VR722 BIAS VR : Fully counterclockwise (MIN)
VR723～VR725 SUB BRIGHT VR : Fully counterclockwise (MIN)
SCREEN VR : Fully counterclockwise (MIN)
VR901 (CRT PWB) : Fully counterclockwise (MIN)
CONTRAST VR : Fully counterclockwise (MIN)
BRIGHT VR : Fully counterclockwise (MIN)

b) Receive the all black image.

c) Ⅰ) Short TP863,TP864,TP865 and TP866.
(Use the specified jig)
Ⅱ) Short SW401 (DEF PWB) to the right side (short).
Perform Ⅰ) and Ⅱ) in the order mentioned.

d) Adjust screen VR so that TP901 equals 650Vdc.(The digital multimeter should have an internal resistance greater than 1000 MΩ,and a voltage rating of 1.5kV or better.)

e) As VR901 (SUB BIAS VR) is gradually turned clockwise,a signal horizontal color line will appear.This line is the reference color for the cutoff adjustment.If VR901 is turned fully clockwise and no line appears, continue on with step f).

f) Turn the BIAS VRs for non-reference color until a white line is formed. If the reference color cannot obtained in step e),turn the three BIAS VRs clockwise and form a white line.

g) Set SW401 to the left (open).
(Keep TP863,TP864,TP865 and TP866 shorted.)
NOTE: Perform this step in as dark a place as possible for ease of cutoff adjustment.

18) Cut-off Fine Adjustment (Contrast Tracking) Signal 16 (78.8kHz Window Pattern)

a) Receive signal 16 (78.8kHz window pattern).

b) Perform the cutoff adjustment with TP863,TP864,TP865 and TP866 shorted.

c) Turn the contrast VR fully clockwise (MAX) and measure the color temperature (X1,Y1).

d) Adjust the brightness to about 7cd/m² by the contrast VR and measure the color temperature.(X2,Y2)

e) Adjust finely the BIAS VR for other than the reference color at the time of cut-off until (X1,Y1) = (X2,Y2).

f) Turn the contrast VR fully clockwise (MAX) once again and measure the color temperature. If a deviation is found, make fine adjustment of step e) above once again as below.
X1-X2=±0.005,Y1-Y2=±0.005

G) Release the short of TP863,TP864,TP865 and TP866.

19) Sub Bright Adjustment Signal 16 (78.8kHz window pattern)

a) Receive the all black pattern of signal 1.

b) Turn the brightness VR fully clockwise (MAX).

C) Adjust the G SUB BRIGHTNESS to 5cd/m² using the G SUB BRIGHT VR.

D) Make the following adjustment by using the R and B SUB BRIGHT VRs :
X=X1±0.005
Y=Y1±0.005
* X1 and Y1 are the values measured in 18.

20) Color Mode Adjustment Signal 15 (78.8kHz)

a) Initial Settings of Adjustment VR
CONTRAST VR : Fully clockwise (MAX)
BRIGHT VR : Fully counterclockwise (MIN)
COLOR SWITCH : N (extreme left)

b) Receive the all white raster pattern of signal 15.

c) Short TP863,TP864,TP865 and TP866.

d) Push the Degaussing and H POSI Right controls to enter level 2. Make sure that the LED is lit.

e) On the CPU PWB short TP-ADJ pins ② and ④.

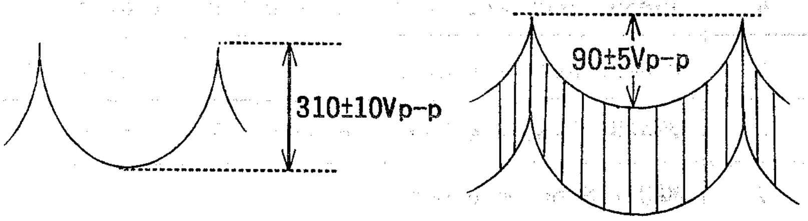
f) Adjust the color temperature as below with the user control
X=0.281±0.005
Y=0.311 ±0.005
and push MEMORY RECALL SWITCH for two seconds.

g) Release the short of TP863,TP864,TP865 and TP866.

h) Receive the all black pattern of signal 15.

i) Turn the brightness VR fully clockwise (MAX).
J) Push the V POSI DOWN SWITCH while holding the degauss switch to change the user control level to 3 and check to be sure that the LED Blinks ON and OFF.
k) Adjust the color temperature as below using the user control
   X=0.281±0.005
   Y=0.311±0.005
   and push MEMORY RECALL SWITCH for two seconds.But when the brightness is in excess of 9cd/m^2, turn VR623,VR724 and VR725 (G,R and B SUB BRIGHT) counterclockwise a little at a time,and adjust the color temperature as above at the brightness of 5~9cd/m^2.
l) Release the short at TP-ADJ pins ② and ④.
m) Push the V POSI UP SWITCH with the degauss switch to set the user control level to 1.

21) Focus Adjustment
a) Receive the all white raster pattern of signal 15 and adjustment the horizontal/vertical image size fully to the bezel.
b) Adjust the voltage of TP951 to the values given blow using VR951 (H FOCUS) and VR952 (V FOCUS) :
   Ⅰ) Horizontal cycle : 310±10Vp-p
   Ⅱ) Vertical cycle : 90±5Vp-p
   * The probe to be used should be 100:1 C=2pF



Horizontal cycle Vertical cycle

Fig.5 Parabola Waveform

c) Perform the Focus adjustment as follows.
   Ⅰ) Turn the contrast VR fully clockwise at the place where the back raster just begins to disappear with use of the brightness VR.
   Ⅱ) Receive the crosshatch pattern (17 vertical lines and 13 horizontal lines) of the green uni-color.
   Ⅲ) Adjust the FBT mounted H Focus control until the horizontal lines become fine.Adjust focus for optimum center and edge performance.Also,adjust focus so that halos do not form on the H lines.
   Ⅳ) Adjust the FBT mounted V Focus control until the vertical lines become fine.Adjust Focus for optimum center edge performance.
   Ⅴ) Repeat steps Ⅲ) and Ⅳ) until there is optimum horizontal and vertical center and edge focus performance.
   Ⅵ) Receive the white character "&" pattern.
   Ⅶ) Check to be sure that the whole of white character "&" is created over the entire display screen.
   Ⅷ) When uniform focus cannot be obtained,turn the V Focus control slightly to where the offset out-of-focus-point occurs.Then make sure the uniform focus performance is achieved.

Ⅸ) When uniform focus is not obtained in ⅷ), turn the H and V Focus controls slightly to where the offset out-focus-point occurs.
NOTE : When the focus control H is turned, the vertical line focus (V) has to be readjusted. The adjustment of step ⅸ) should be made only when it is not possible to obtain the focus though adjustment in step ⅶ).

x) When adjustment of ⅷ) and ⅸ) are made, receive the crosshatch signal and check to be sure that halos do not appear on the individual RGB lines.

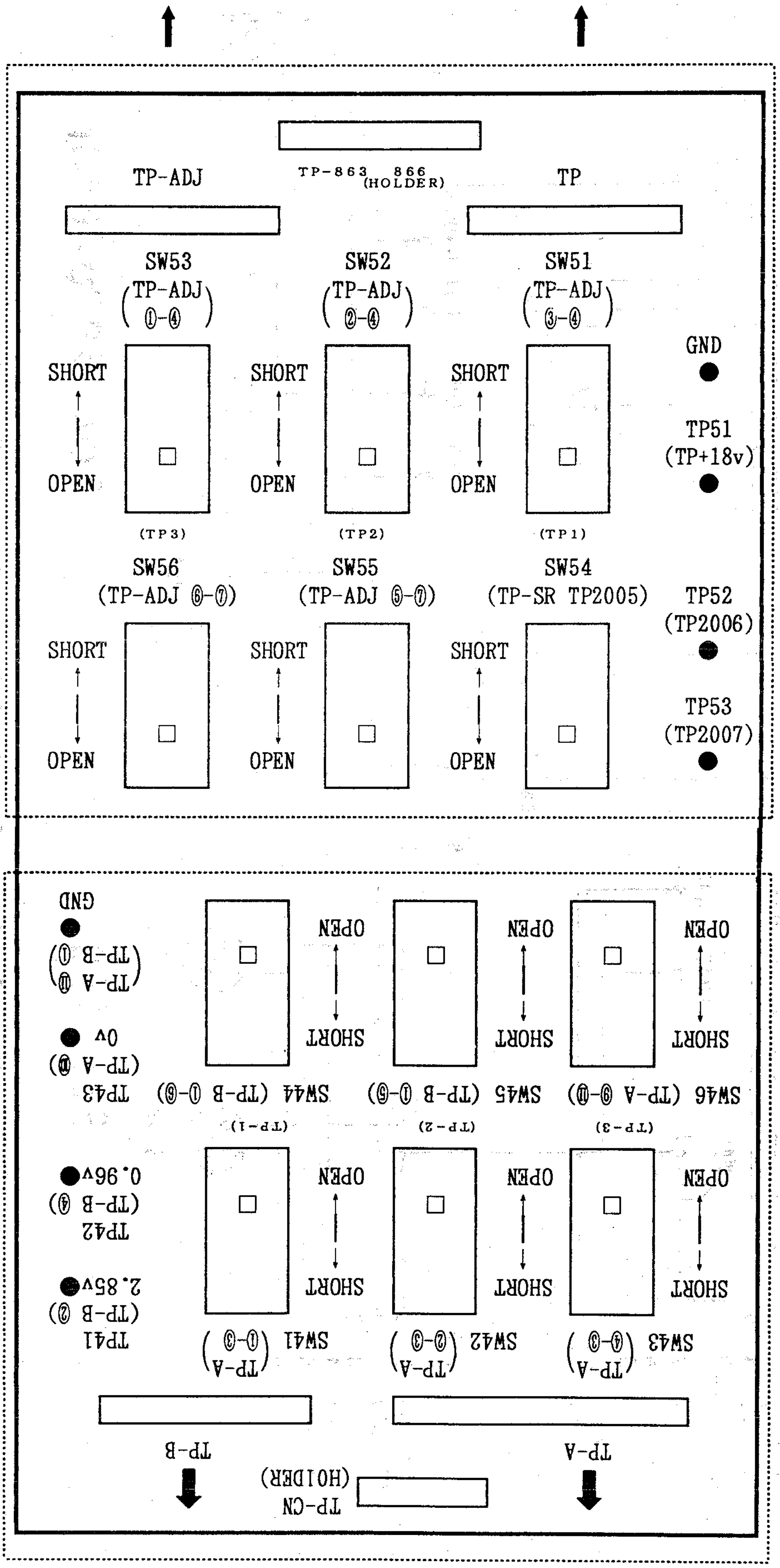
* Incidentally, when the focus is uniform over the entire display screen, each parabola wave should be corrected to ±40V at the Horizontal cycle and to ±20V at the Vertical cycle.

22) Adjustment Signal Timing

Signal	Contents
1	44kHz 72kHz all-white signal H HOLD 2
2	27kHz 60Hz Separate Sync H Sync : N V Sync : P
3	79kHz 74Hz Sync on Green
4	VGA350 Separate Sync H Sync : P V Sync : N H HOLD 3
5	VGA400 Separate Sync H Sync : N V Sync : P
6	VGA480 Separate Sync H Sync : N V Sync : N
7	MAC-Ⅱ Sync on Green
8	8514A Separate Sync Interlace H Sync : P V Sync : P
9	800*600/56.2Hz Separate Sync H Sync : P V Sync : P
10	800*600/72Hz Separate Sync H Sync : P V Sync : P
11	1024*768/60Hz Separate Sync H Sync : N V Sync : N
12	1024*768/70Hz Separate Sync H Sync : N V Sync : N
13	1280*1024/60Hz Sync on Green H HOLD 1
14	1280*1024/70Hz Sync on Green
15	1280*1024/74Hz Sync on Green
16	1280*1024/74Hz Sync on Green Window Pattern

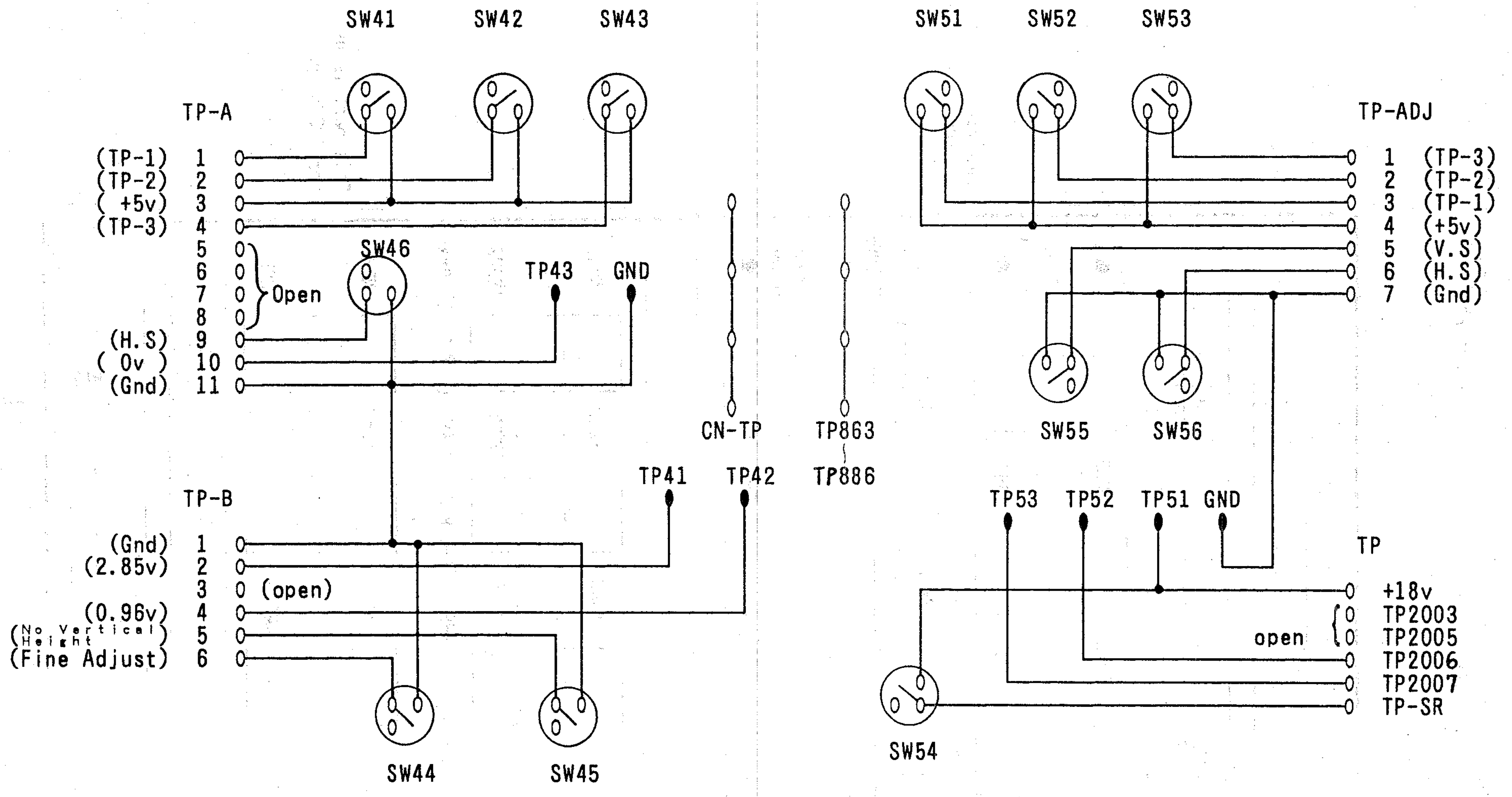
Connect to CN-ADJ on
the CPU PWB ASSY.

Connect to CN-TP on
the DEF PWB ASSY.


TP-ADJ
TP-863 866 (HOLDER)
TP
SW53 (TP-ADJ ①-④)
SW52 (TP-ADJ ②-④)
SW51 (TP-ADJ ③-④)
GND
SHORT
OPEN
TP51 (TP+18v)
(TP3)
(TP2)
(TP1)
SW56 (TP-ADJ ⑥-⑦)
SW55 (TP-ADJ ⑤-⑦)
SW54 (TP-SR TP2005)
TP52 (TP2006)
TP53 (TP2007)
TP-CN (HOlDER)
TP-A
TP-B
SW43 (TP-A ④-③)
SW42 (TP-A ②-③)
SW41 (TP-A ①-③)
TP41 (TP-B ②) 2.85v
TP42 (TP-B ④) 0.96v
(TP-3)
(TP-2)
(TP-1)
SW46 (TP-A ⑨-⑪)
SW45 (TP-B ①-⑤)
SW44 (TP-B ①-⑥)
TP43 (TP-A ⑪) 0v
(TP-A ⑪ TP-B ①)
GND

This part is used
for 5FGp and 6FGp.

This part is used
for 4FG only.


SW41
SW42
SW43
TP-A
(TP-1) 1
(TP-2) 2
(+5v) 3
(TP-3) 4
5
6
7
8
Open
(H.S) 9
(0v) 10
(Gnd) 11
SW46
TP43
GND
CN-TP
TP863
TP886
TP41
TP42
TP-B
(Gnd) 1
(2.85v) 2
3 (open)
(0.96v) 4
(No Vertical Height) 5
(Fine Adjust) 6
SW44
SW45
SW51
SW52
SW53
TP-ADJ
1 (TP-3)
2 (TP-2)
3 (TP-1)
4 (+5v)
5 (V.S)
6 (H.S)
7 (Gnd)
SW55
SW56
TP53
TP52
TP51
GND
TP
+18v
TP2003
TP2005
open
TP2006
TP2007
TP-SR
SW54

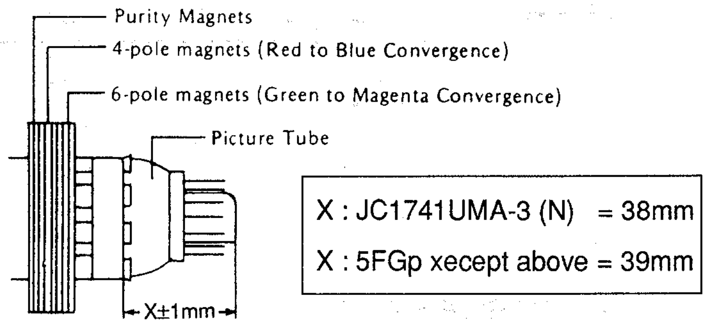
For 4FG

For 5FGp/6FGp

Adjustment jig Schematic Diagram

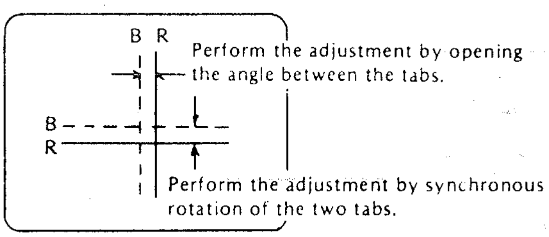
Purity Adjustment

1. (1) Be sure that the display is not being exposed to any external magnetic fields.
2. (2) Ensure that the spacing between the Purity Convergence Magnet (PCM) assembly and the CRT stem is 29mm±1mm. (See diagrams below)
3. (3) Produce a complete, red pattern on the screen. Adjust the purity magnet rings on the PCM assembly to obtain a complete field of the color red. This is done by moving the two tabs in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180°.
4. (4) Check the complete blue and complete green patterns to observe their respective color purity. Make minor adjustments if needed.

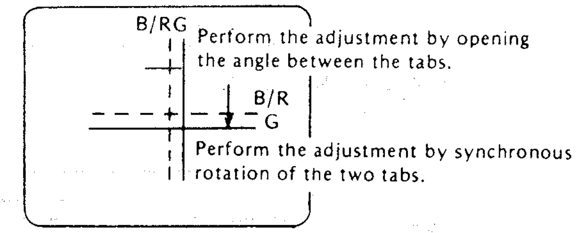

Purity Magnets
4-pole magnets (Red to Blue Convergence)
6-pole magnets (Green to Magenta Convergence)
Picture Tube
X±1mm

X : JC1741UMA-3 (N) = 38mm
X : 5FGp xecept above = 39mm

Purity, Convergence Magnet Assembly (PCM)


B R
Perform the adjustment by opening the angle between the tabs.
B
R
Perform the adjustment by synchronous rotation of the two tabs.

Red to Blue Convergence (Magenta)


B/RG
Perform the adjustment by opening the angle between the tabs.
B/R
G
Perform the adjustment by synchronous rotation of the two tabs.

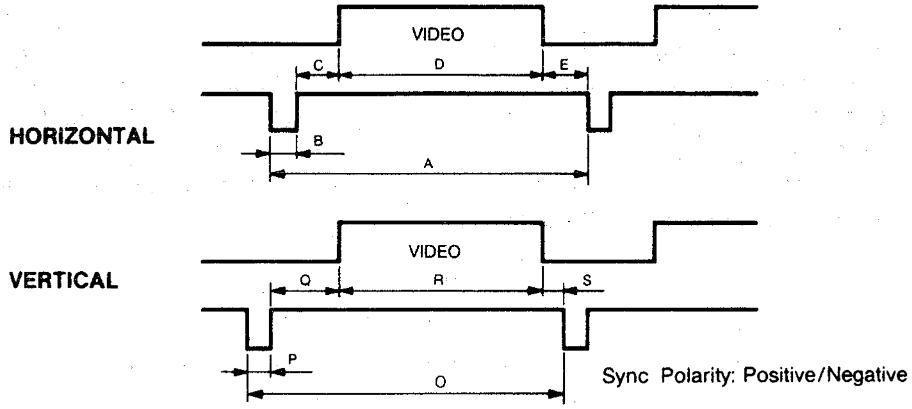
Green to Magenta Convergence (White)

Convergence Adjustment

1. (1) Produce a magenta crosshatch on the screen.
2. (2) Adjust the focus for the best overall focus on the screen.
   Also adjust the brightness to the desired condition.
3. (3) Vertical red and blue lines are converged by varying the angle between the two tabs of the 4-pole magnets on the PCM assembly. (See diagrams above)
4. (4) Horizontal red and blue lines are converged by varying the two tabs together, keeping the angle between them constant.
5. (5) Produce a white crosshach pattern of the screen.
6. (6) Vertical green and magenta lines are converged by varying the angle between the two tabs of the 6-pole magnets.
7. (7) Horizontal green and magenta lines are converged by varying the two tabs together, keeping the angle between them constant.

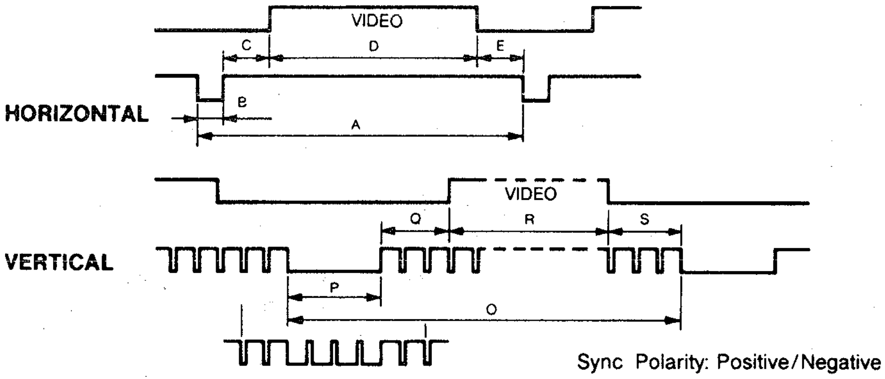
TIMING CHARTS

SEPARATE SYNC


VIDEO
C
D
E
HORIZONTAL
B
A
VIDEO
VERTICAL
Q
R
S
P
O

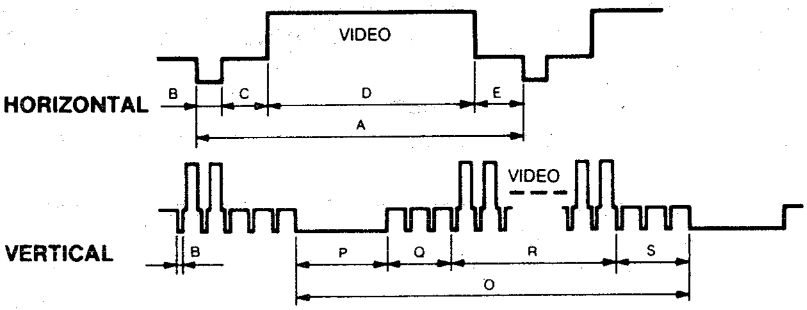
Sync Polarity: Positive/Negative

COMPOSITE SYNC


VIDEO
C
D
E
HORIZONTAL
B
A
VIDEO
Q
R
S
VERTICAL
P
O

Sync Polarity: Positive/Negative

COMPOSITE SYNC AND VIDEO (SYNC ON GREEN)


VIDEO
HORIZONTAL
B
C
D
E
A
VIDEO
VERTICAL
B
P
Q
R
S
O

Sync Polarity: Negative

REFERENCE TIMING SIGNAL

SIGNALS FOR USING LVG-1603

Abbreviation		Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			44kHz 72Hz	27kHz 60Hz	79kHz 74Hz	VGA350	VGA400	VGA480	MAC Ⅱ	8514A	800x 600 56Hz	800x 600 72Hz	1024x 768 60Hz	1024x 768 70Hz	1280x 1024 60Hz	1280x 1024 70Hz	1280x 1024 74Hz	1280x 1024 74Hz WINDOW
HORIZONTAL	Total	DOT	1040	0900	0759	0900	0900	0900	0864	1264	1024	1040	1024	1062	0932	0800	0760	0760
	Rate	kHz	044000	027000	079000	031470	031470	031470	035000	035520	035160	048090	048360	056480	064310	074910	078860	078860
	Dots/Character	DOT	08	08	09	09	09	09	09	08	08	08	09	09	08	09	08	08
	Characters	CHR	F100	F090	F063	F080	F080	F080	F080	F128	F100	F100	F105	F091	F090	F067	F071	F018
	Drive Delay	DOT	0856	0738	0582	0738	0738	0738	0704	1032	0824	0856	0967	0838	0739	0619	0582	0371
	Drive Width	DOT	0120	0108	0064	0108	0108	0108	0064	0176	0072	0120	0125	0109	0058	0075	0064	0064
VERTICAL	Total	RASTER	0609	0449	1064	0449	0449	0524	0525	0409	0625	0666	0806	0806	1065	1072	1064	1064
	Rate	Hz	072250	060134	074248	070000	070000	060000	066700	087000	056200	072207	060000	070074	060385	069879	074117	074117
	Lines/Character	RASTER	10	10	10	14	16	16	16	12	15	10	10	10	10	10	10	10
	Rows	RASTER	0549	0400	1024	0350	0400	0480	0480	0384	0600	0600	0768	0768	1024	1024	1024	0326
	Drive Delay	RASTER	0583	0412	1024	0387	0412	0489	0483	0384	0601	0637	0771	0771	1030	1026	1024	0675
	Drive Width	RASTER	0005	0002	0003	0002	0002	0002	0003	0004	0002	0006	0006	0006	0003	0004	0003	0003
DOT RATE		MHz	045760	024300	059961	028323	028323	028323	030240	044897	036004	050014	059966	059982	059937	059928	059934	059934
Scan Mode			F0	F0	F0	F0	F0	F0	F0	F1	F0	F0	F0	F0	F0	F0	F0	F0
Character Font			F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1
Charactor Code			48	48	48	—	—	—	—	—	—	48	48	48	48	48	48	48
Pattern Key code			F2	F2	F2	F	F	F	F	F	F	F2	F2	F2	F2	F2	F2	F2
Video Output			1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110
Add Sync/Inverse			0000	0000	0100	0001	0001	0001	0001	0001	0101	0000	0000	0000	0100	0100	0100	0100
Dot Duty			00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Polarity			00	01	00	10	01	00	00	11	11	11	00	00	00	00	00	00

SIGNAL FOR USING QUANTUM801C

Abbreviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	44 kHz	27 kHz	79 kHz	VGA 350	VGA 400	VGA 480	MAC Ⅱ	8514A	800x600 56Hz	800x600 72Hz	1024x768 60Hz	1024x768 70Hz	1280x1024 60Hz	1280x1024 70Hz	1280x1024 74Hz	1280x1024 74Hz WIN
Real Timing Parameter																
Dot Rate (MHz)	31.680	24.300	—	28.320	28.320	28.320	30.240	31.968	31.960	31.932	31.773	31.692	31.898	—	—	—
Horizontal Rate (kHz)	44.000	27.000		31.467	31.467	31.467	35.000	35.520	35.160	48.090	48.360	56.480	64.310			
Vertical Rate (Hz)	72.250	60.134		70.08	70.08	60.06	66.67	86.96	56.26	72.207	60.000	70.074	60.385			
Non-Real Time Parameters																
H: Dots/Character	8	9	—	9	9	9	8	9	9	8	9	8	8	—	—	—
Total Character	90	100		100	100	100	108	100	101	83	73	70	62			
Displyed Characters	70	80		80	80	80	80	81	79	64	56	55	48			
Drive Delay	75	82		82	82	82	88	82	81	68	57	56	49			
Drive Width	11	12		12	12	12	8	14	7	10	7	7	4			
V: Lines/Character	10	10		10	10	10	10	12	10	12	12	12	10			
Total Lines	609	449		449	449	524	525	817	625	666	806	806	1065			
Displayed Rows	55	40		35	40	48	48	64	60	50	64	64	102			
Drive Delay	58	41		39	41	49	48	64	60	53	64	64	103			
Drive Width	5	2		2	2	2	3	4	2	6	6	6	3			
Step Width	2	2		2	2	2	2	2	2	2	2	2	2			
Signal Gating																
Composite Sync OP 1	1	1	—	0	0	0	0	0	0	1	1	1	1	—	—	—
Vertical Step OP 2	0	0		0	0	0	0	0	0	0	0	0	0			
Horizontal Drive OP 3	1	1		1	1	1	1	1	1	1	1	1	1			
Vertical Drive OP 4	1	1		1	1	1	1	1	1	1	1	1	1			
Signal Polarity																
Composite Sync OP 5	1	1	—	-	-	-	-	-	-	0	1	1	1	—	—	—
Vertical Step OP 6	1	1		0	0	0	0	0	0	1	1	1	1			
Horizontal Drive OP 7	1	1		0	1	1	1	0	0	0	1	1	1			
Vertical Drive OP 8	1	0		1	0	1	1	0	0	0	1	1	1			
Video OP 13	0	0		0	0	0	0	0	0	0	0	0	0			
Interlace OP 9	0	0		0	0	0	0	3	0	0	0	0	0			
Video Mode OP 10	1	1		1	1	1	1	1	1	1	1	1	1			
Duty Cycle OP 11	0	0		0	0	0	0	0	0	0	0	0	0			
Character Clocking																
Mode OP 12	0	0		0	0	0	0	0	0	0	0	0	0			
Horizontal OP 14	0	0		-	-	-	-	-	-	0	0	0	0			
Vertical OP 15	0	0		-	-	-	-	-	-	0	0	0	0			
Cursor OP 16	0	0		-	-	-	-	-	-	0	0	0	0			

NOTE: Quantum 801C (fH ≦ 65kHz) can not use for the item 3,14,15 and 16 of this timing chart.

TROUBLE SHOOTING

Before using this chart, please refer to the trouble shooting section in the user's manual.

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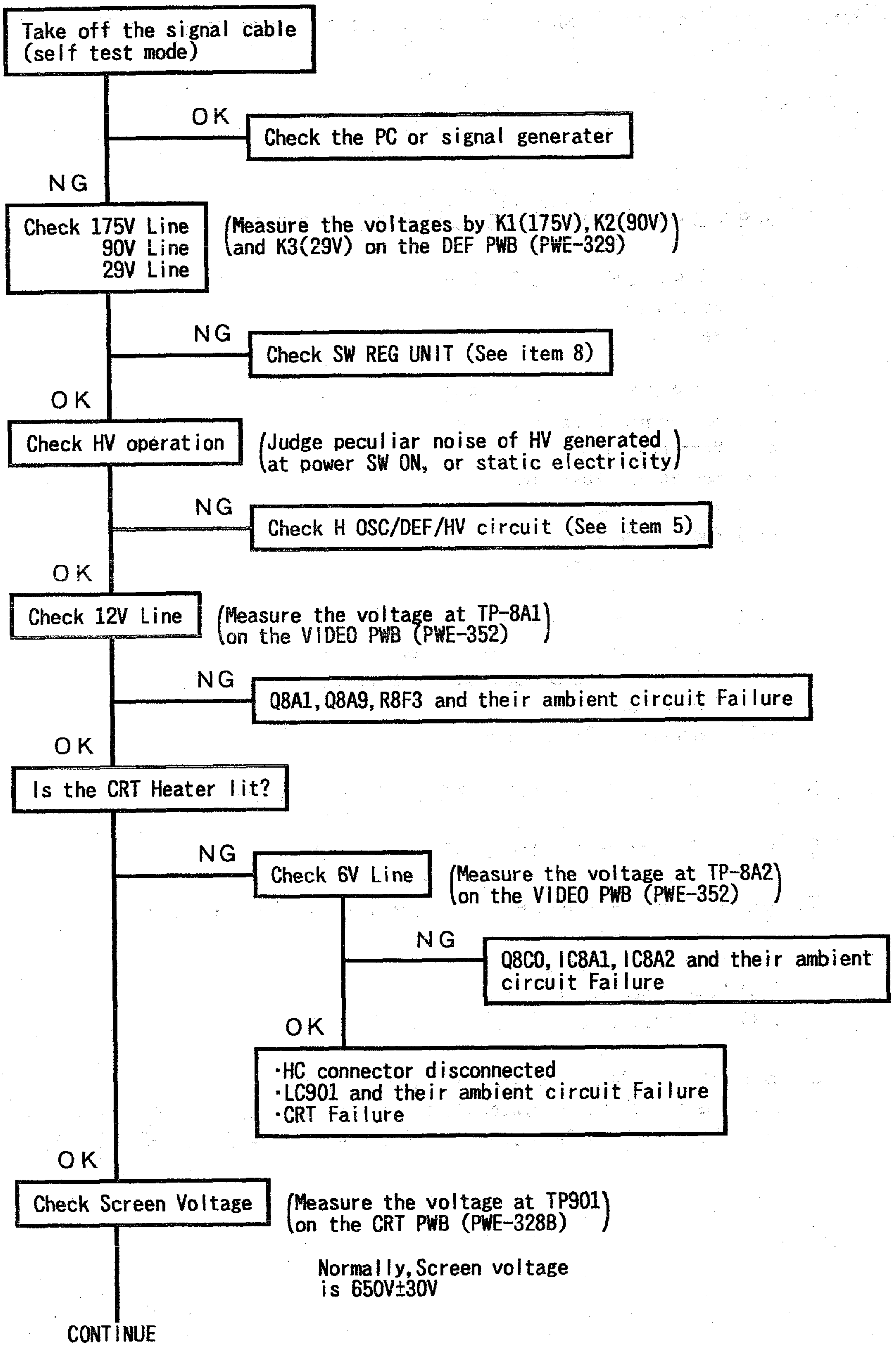
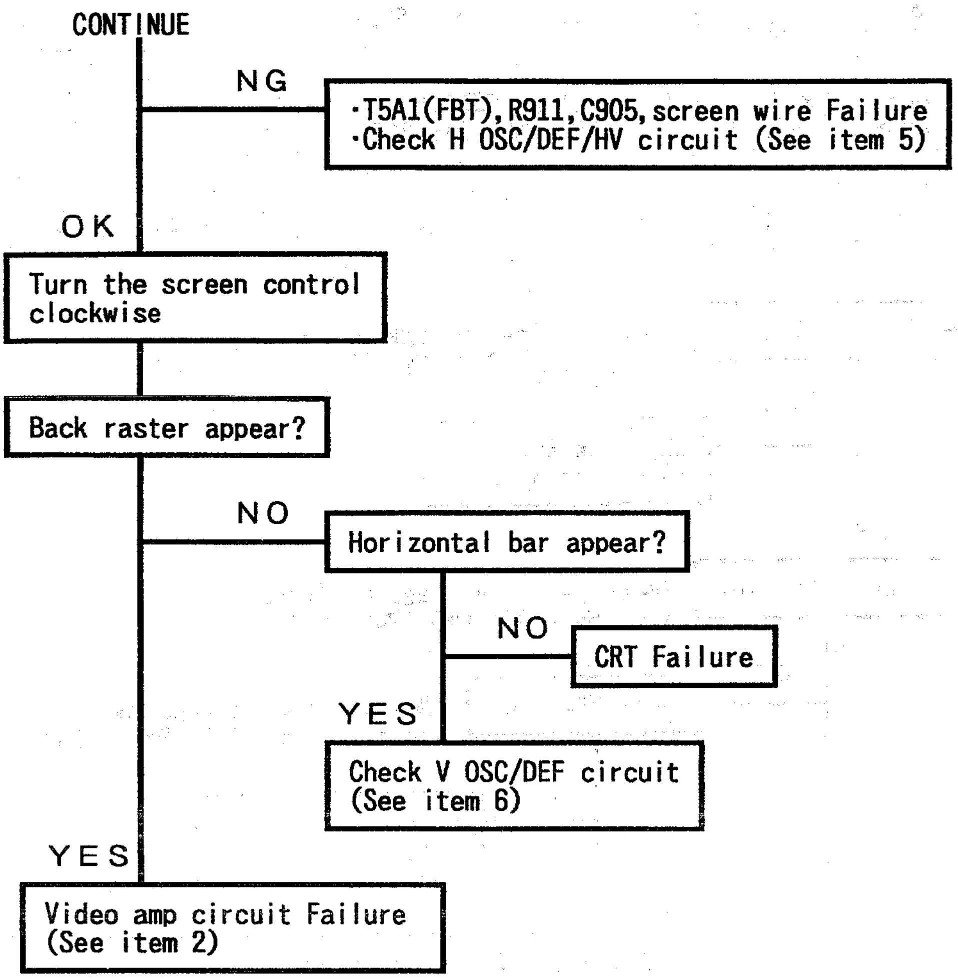
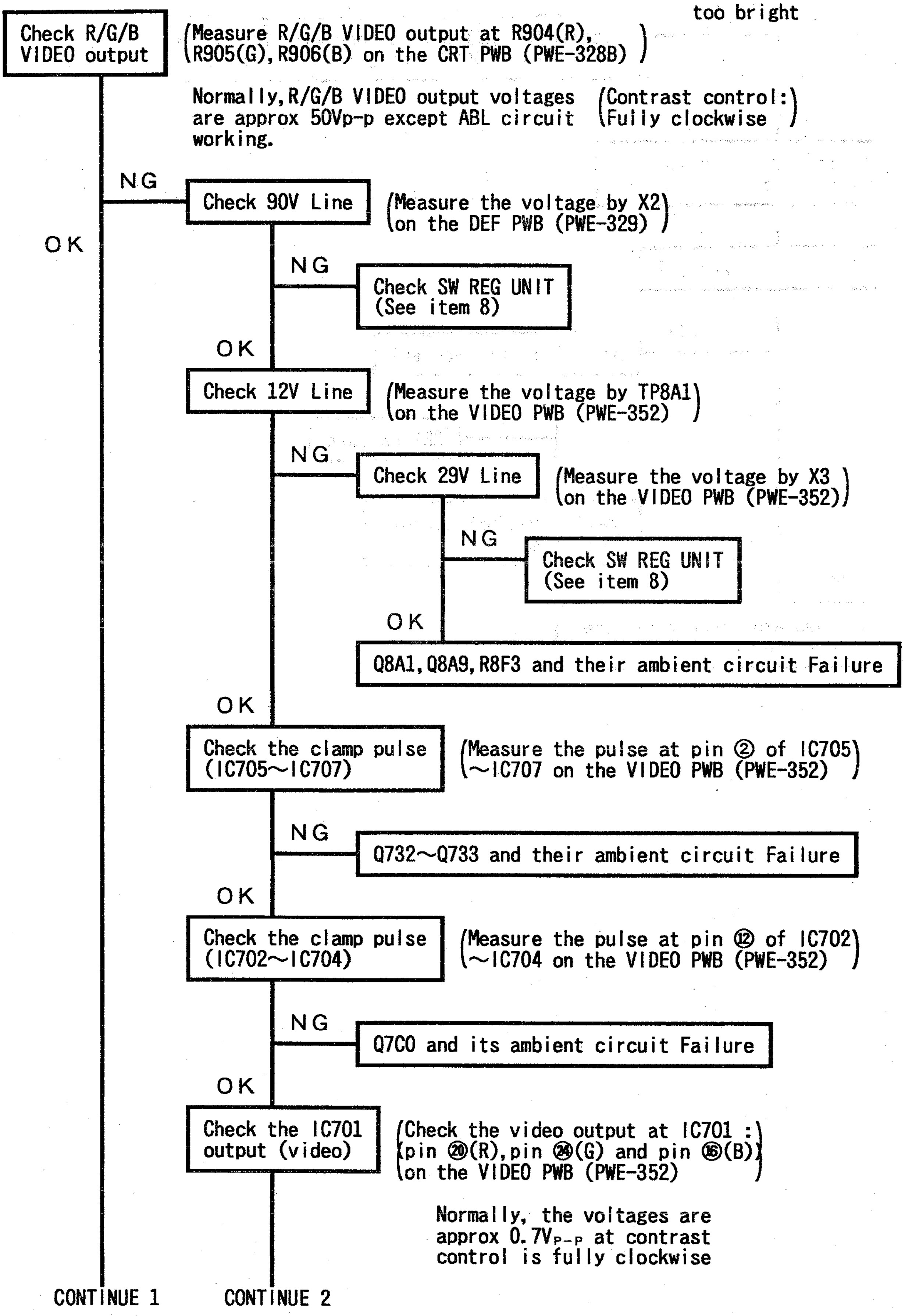
1. NO RASTER

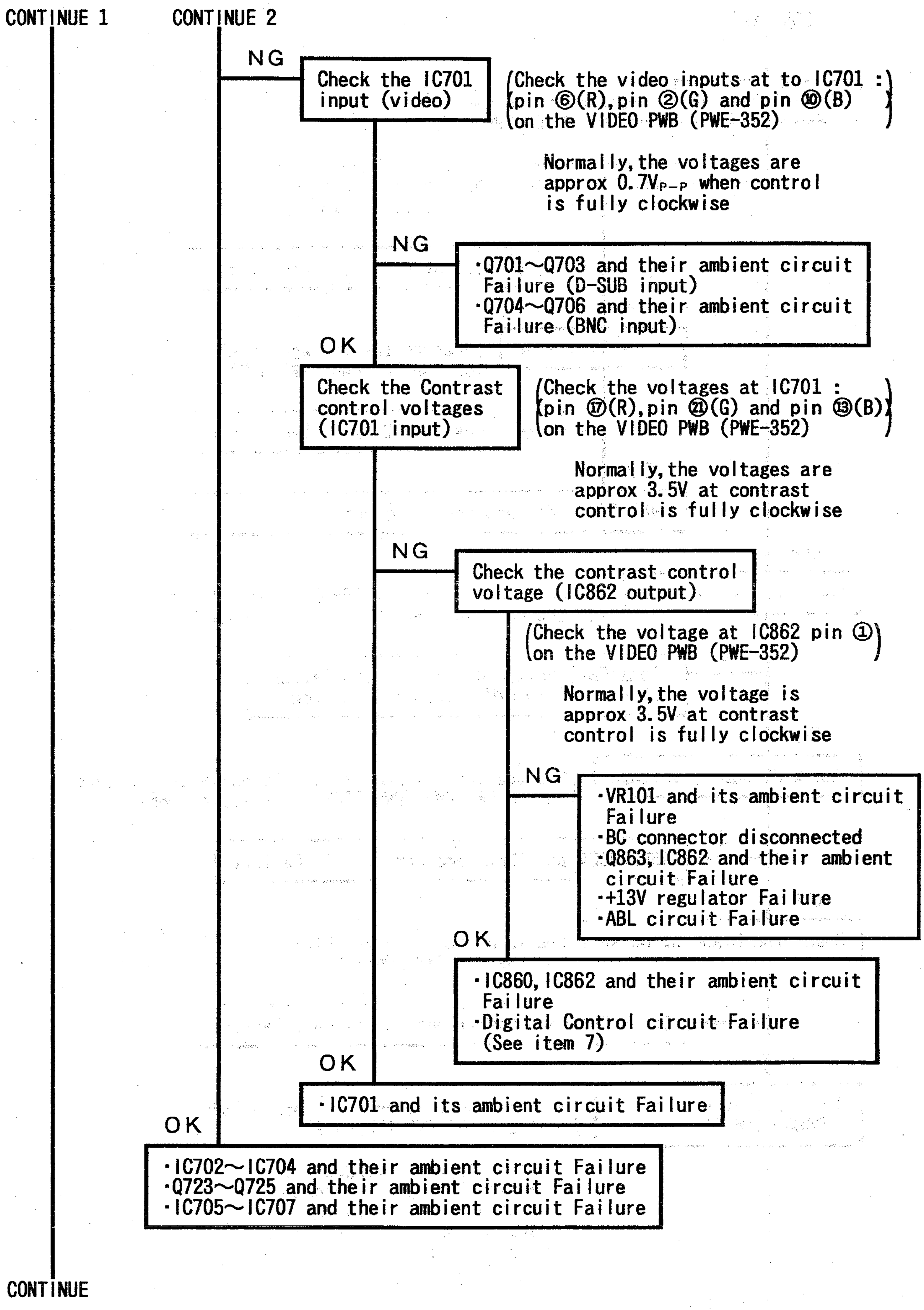

Take off the signal cable (self test mode)
OK
Check the PC or signal generater
NG
Check 175V Line 90V Line 29V Line
(Measure the voltages by K1(175V),K2(90V) and K3(29V) on the DEF PWB (PWE-329))
NG
Check SW REG UNIT (See item 8)
OK
Check HV operation
(Judge peculiar noise of HV generated at power SW ON, or static electricity)
NG
Check H OSC/DEF/HV circuit (See item 5)
OK
Check 12V Line
(Measure the voltage at TP-8A1 on the VIDEO PWB (PWE-352))
NG
Q8A1,Q8A9,R8F3 and their ambient circuit Failure
OK
Is the CRT Heater lit?
NG
Check 6V Line
(Measure the voltage at TP-8A2 on the VIDEO PWB (PWE-352))
NG
Q8C0,IC8A1,IC8A2 and their ambient circuit Failure
OK
·HC connector disconnected
·LC901 and their ambient circuit Failure
·CRT Failure
OK
Check Screen Voltage
(Measure the voltage at TP901 on the CRT PWB (PWE-328B))
Normally,Screen voltage is 650V±30V
CONTINUE

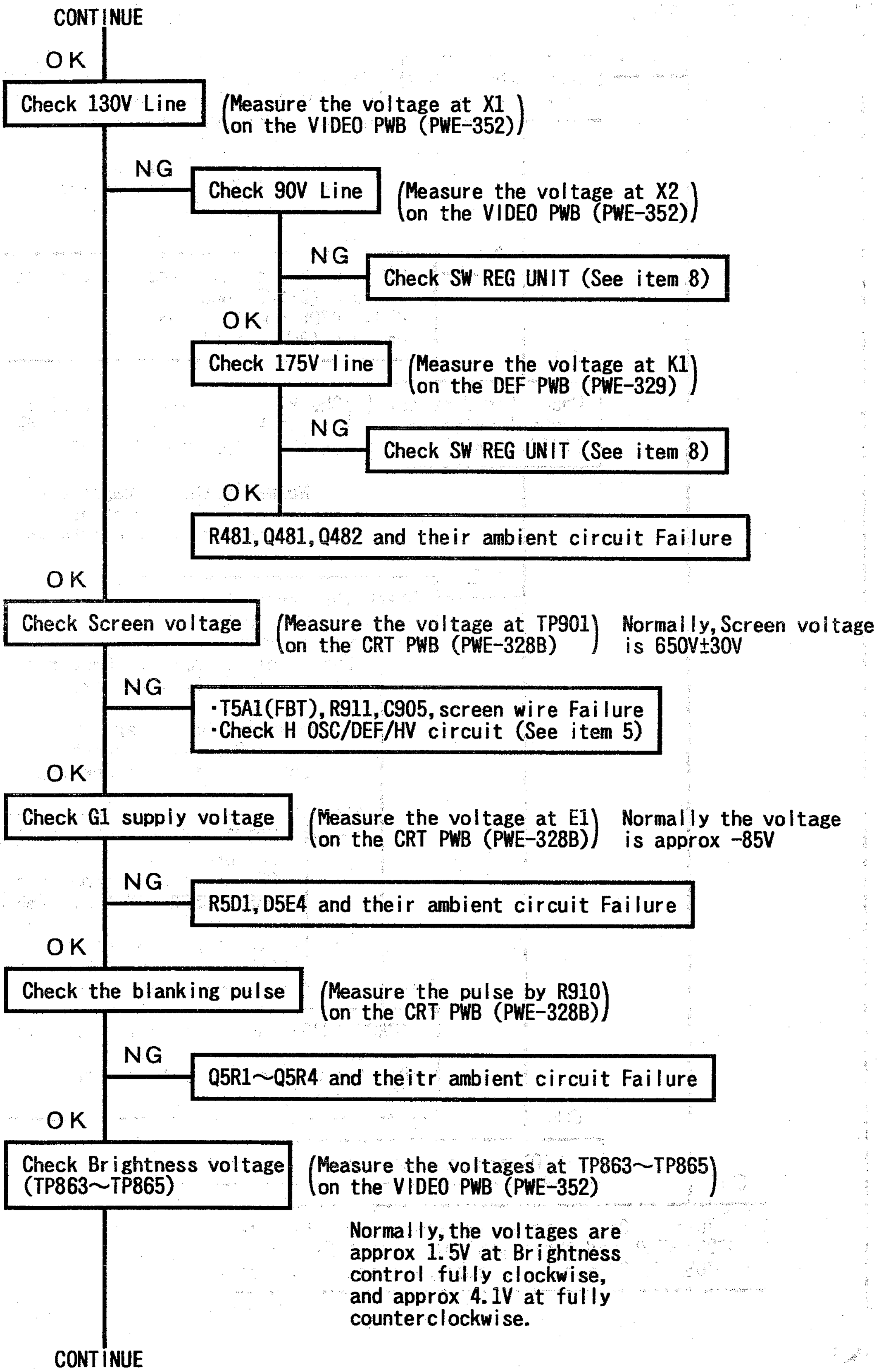

CONTINUE
NG
·T5A1(FBT),R911,C905,screen wire Failure
·Check H OSC/DEF/HV circuit (See item 5)
OK
Turn the screen control clockwise
Back raster appear?
NO
Horizontal bar appear?
NO
CRT Failure
YES
Check V OSC/DEF circuit (See item 6)
YES
Video amp circuit Failure (See item 2)

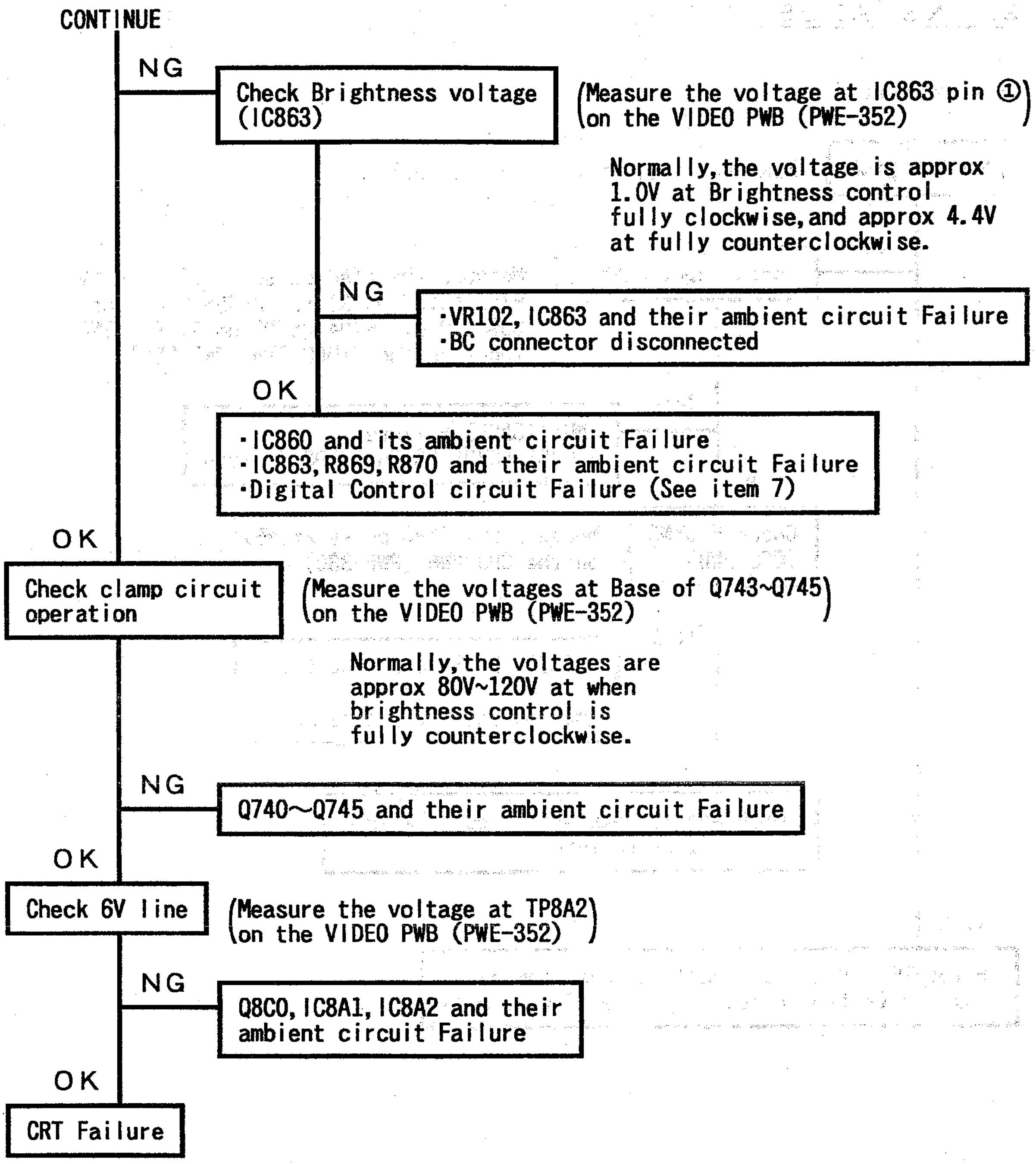
2. ABNORMAL VIDEO ON CRT SCREEN

Too dark or too bright


Check R/G/B VIDEO output
(Measure R/G/B VIDEO output at R904(R), R905(G), R906(B) on the CRT PWB (PWE-328B))
Normally, R/G/B VIDEO output voltages are approx 50Vp-p except ABL circuit working.
(Contrast control: Fully clockwise)
NG
Check 90V Line
(Measure the voltage by X2 on the DEF PWB (PWE-329))
OK
NG
Check SW REG UNIT (See item 8)
OK
Check 12V Line
(Measure the voltage by TP8A1 on the VIDEO PWB (PWE-352))
NG
Check 29V Line
(Measure the voltage by X3 on the VIDEO PWB (PWE-352))
NG
Check SW REG UNIT (See item 8)
OK
Q8A1, Q8A9, R8F3 and their ambient circuit Failure
OK
Check the clamp pulse (IC705～IC707)
(Measure the pulse at pin ② of IC705～IC707 on the VIDEO PWB (PWE-352))
NG
Q732～Q733 and their ambient circuit Failure
OK
Check the clamp pulse (IC702～IC704)
(Measure the pulse at pin ⑫ of IC702～IC704 on the VIDEO PWB (PWE-352))
NG
Q7C0 and its ambient circuit Failure
OK
Check the IC701 output (video)
(Check the video output at IC701 : pin ⑳(R), pin ㉔(G) and pin ⑯(B) on the VIDEO PWB (PWE-352))
Normally, the voltages are approx 0.7Vp-p at contrast control is fully clockwise
CONTINUE 1
CONTINUE 2


CONTINUE 1
CONTINUE 2
NG
Check the IC701 input (video)
(Check the video inputs at to IC701 : pin ⑥(R), pin ②(G) and pin ⑩(B) on the VIDEO PWB (PWE-352))
Normally, the voltages are approx 0.7V_{P-P} when control is fully clockwise
NG
·Q701~Q703 and their ambient circuit Failure (D-SUB input)
·Q704~Q706 and their ambient circuit Failure (BNC input)
OK
Check the Contrast control voltages (IC701 input)
(Check the voltages at IC701 : pin ⑰(R), pin ㉑(G) and pin ⑬(B) on the VIDEO PWB (PWE-352))
Normally, the voltages are approx 3.5V at contrast control is fully clockwise
NG
Check the contrast control voltage (IC862 output)
(Check the voltage at IC862 pin ① on the VIDEO PWB (PWE-352))
Normally, the voltage is approx 3.5V at contrast control is fully clockwise
NG
·VR101 and its ambient circuit Failure
·BC connector disconnected
·Q863, IC862 and their ambient circuit Failure
·+13V regulator Failure
·ABL circuit Failure
OK
·IC860, IC862 and their ambient circuit Failure
·Digital Control circuit Failure (See item 7)
OK
·IC701 and its ambient circuit Failure
OK
·IC702~IC704 and their ambient circuit Failure
·Q723~Q725 and their ambient circuit Failure
·IC705~IC707 and their ambient circuit Failure
CONTINUE


CONTINUE
OK
Check 130V Line
(Measure the voltage at X1 on the VIDEO PWB (PWE-352))
NG
Check 90V Line
(Measure the voltage at X2 on the VIDEO PWB (PWE-352))
NG
Check SW REG UNIT (See item 8)
OK
Check 175V line
(Measure the voltage at K1 on the DEF PWB (PWE-329))
NG
Check SW REG UNIT (See item 8)
OK
R481,Q481,Q482 and their ambient circuit Failure
OK
Check Screen voltage
(Measure the voltage at TP901 on the CRT PWB (PWE-328B))
Normally,Screen voltage is 650V±30V
NG
·T5A1(FBT),R911,C905,screen wire Failure
·Check H OSC/DEF/HV circuit (See item 5)
OK
Check G1 supply voltage
(Measure the voltage at E1 on the CRT PWB (PWE-328B))
Normally the voltage is approx -85V
NG
R5D1,D5E4 and their ambient circuit Failure
OK
Check the blanking pulse
(Measure the pulse by R910 on the CRT PWB (PWE-328B))
NG
Q5R1~Q5R4 and theitr ambient circuit Failure
OK
Check Brightness voltage (TP863~TP865)
(Measure the voltages at TP863~TP865 on the VIDEO PWB (PWE-352))
Normally,the voltages are approx 1.5V at Brightness control fully clockwise, and approx 4.1V at fully counterclockwise.
CONTINUE


CONTINUE
NG
Check Brightness voltage (IC863)
NG
·VR102, IC863 and their ambient circuit Failure
·BC connector disconnected
OK
·IC860 and its ambient circuit Failure
·IC863, R869, R870 and their ambient circuit Failure
·Digital Control circuit Failure (See item 7)
OK
Check clamp circuit operation
NG
Q740～Q745 and their ambient circuit Failure
OK
Check 6V line
NG
Q8C0, IC8A1, IC8A2 and their ambient circuit Failure
OK
CRT Failure

(Measure the voltage at IC863 pin ① on the VIDEO PWB (PWE-352))

Normally, the voltage is approx 1.0V at Brightness control fully clockwise, and approx 4.4V at fully counterclockwise.

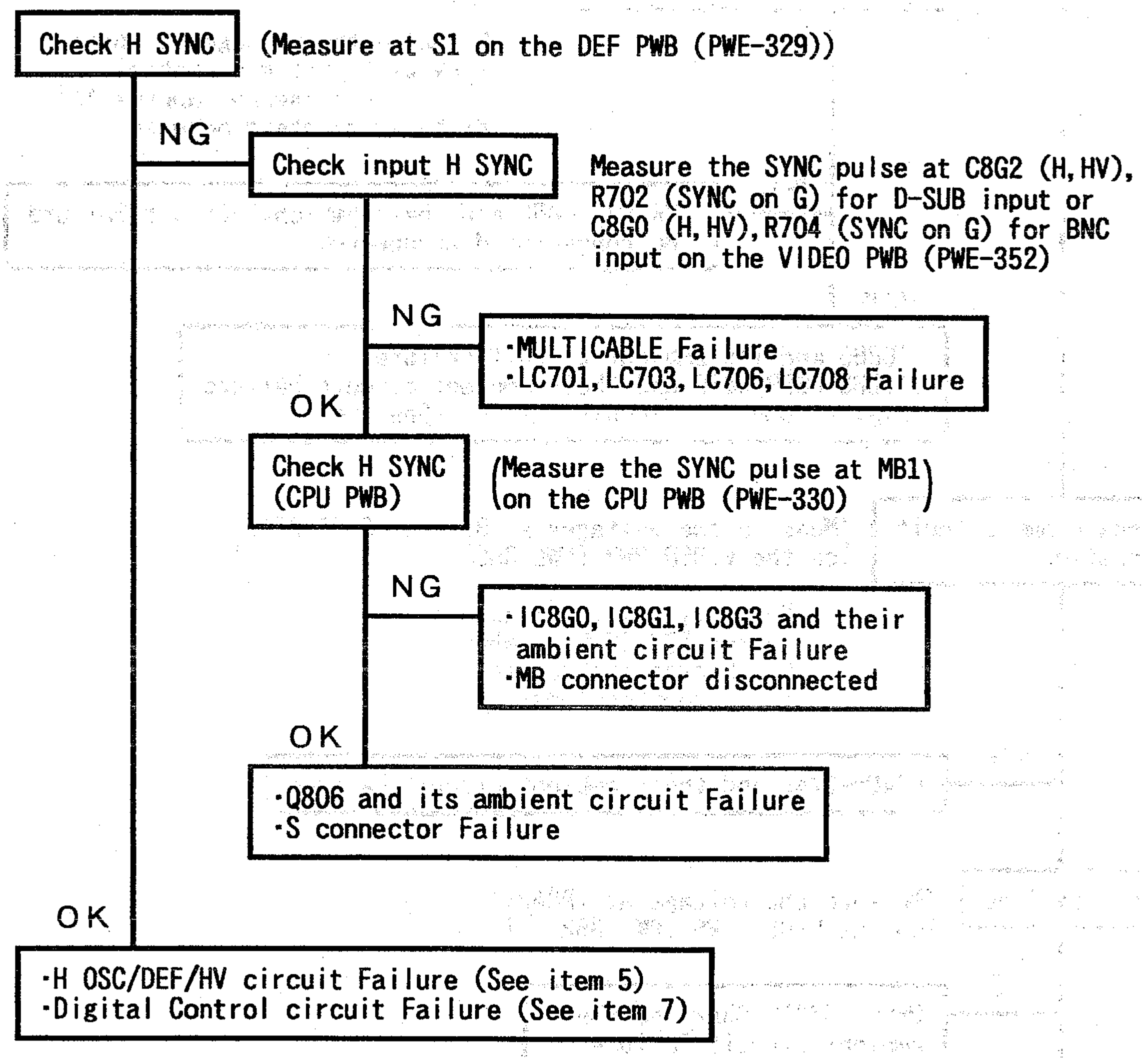
(Measure the voltages at Base of Q743~Q745 on the VIDEO PWB (PWE-352))

Normally, the voltages are approx 80V~120V at when brightness control is fully counterclockwise.

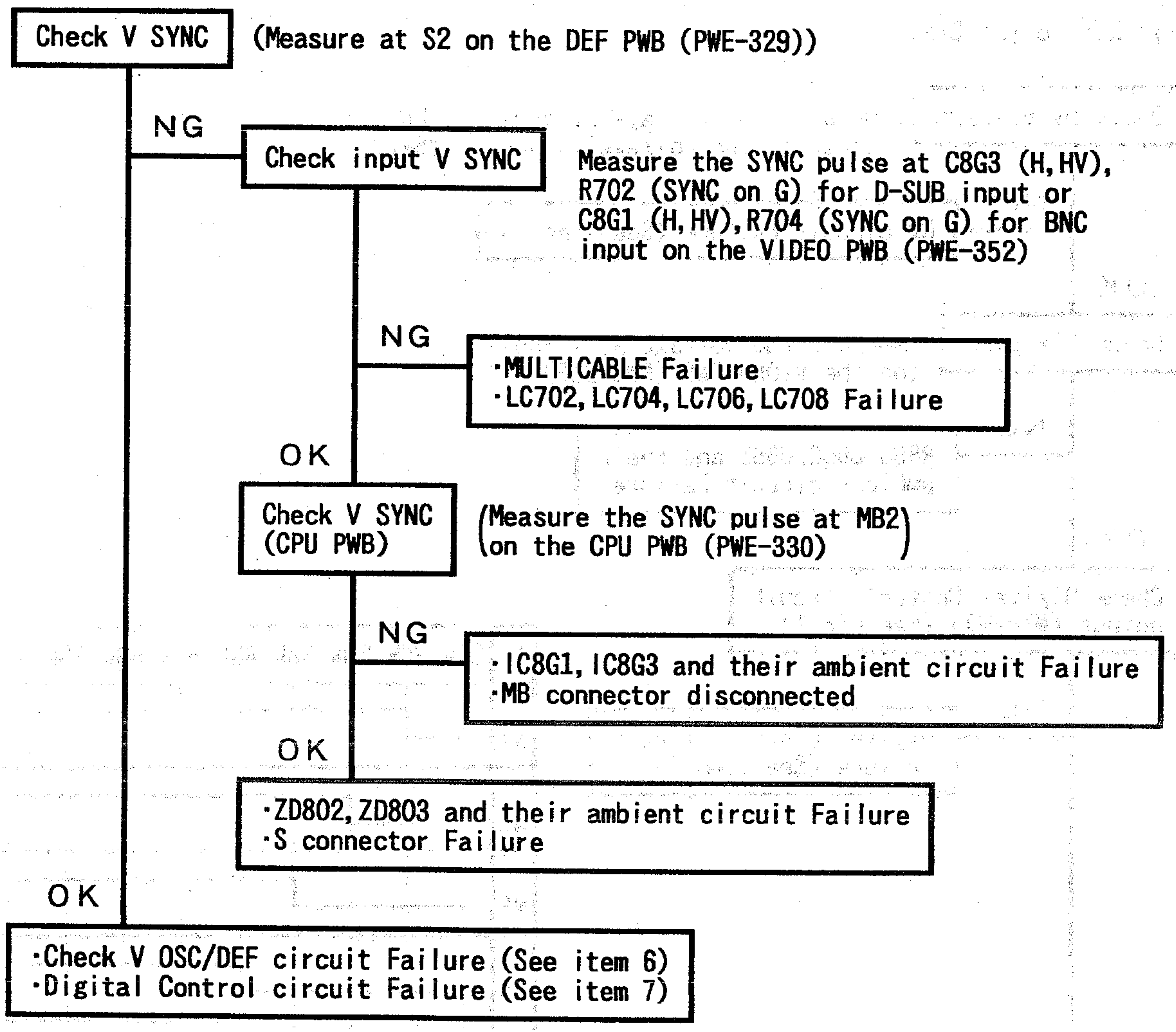
(Measure the voltage at TP8A2 on the VIDEO PWB (PWE-352))

3. UNSTABLE PICTURE

3-1) Horizontal


Check H SYNC
(Measure at S1 on the DEF PWB (PWE-329))
NG
Check input H SYNC
Measure the SYNC pulse at C8G2 (H,HV), R702 (SYNC on G) for D-SUB input or C8G0 (H,HV),R704 (SYNC on G) for BNC input on the VIDEO PWB (PWE-352)
NG
·MULTICABLE Failure
·LC701,LC703,LC706,LC708 Failure
OK
Check H SYNC (CPU PWB)
(Measure the SYNC pulse at MB1 on the CPU PWB (PWE-330))
NG
·IC8G0,IC8G1,IC8G3 and their ambient circuit Failure
·MB connector disconnected
OK
·Q806 and its ambient circuit Failure
·S connector Failure
OK
·H OSC/DEF/HV circuit Failure (See item 5)
·Digital Control circuit Failure (See item 7)

3-2) Vertical


Check V SYNC
(Measure at S2 on the DEF PWB (PWE-329))
NG
Check input V SYNC
Measure the SYNC pulse at C8G3 (H,HV), R702 (SYNC on G) for D-SUB input or C8G1 (H,HV),R704 (SYNC on G) for BNC input on the VIDEO PWB (PWE-352)
NG
·MULTICABLE Failure
·LC702,LC704,LC706,LC708 Failure
OK
Check V SYNC (CPU PWB)
(Measure the SYNC pulse at MB2 on the CPU PWB (PWE-330))
NG
·IC8G1,IC8G3 and their ambient circuit Failure
·MB connector disconnected
OK
·ZD802,ZD803 and their ambient circuit Failure
·S connector Failure
OK
·Check V OSC/DEF circuit Failure (See item 6)
·Digital Control circuit Failure (See item 7)

4. ABNORMAL PICTURE

4-1) Horizontal Size

Check HV Voltage (Measure the voltage at Anode of CRT)
Normally, the voltage is approx 25kV.

NG → HV circuit Failure (See item 5)

OK

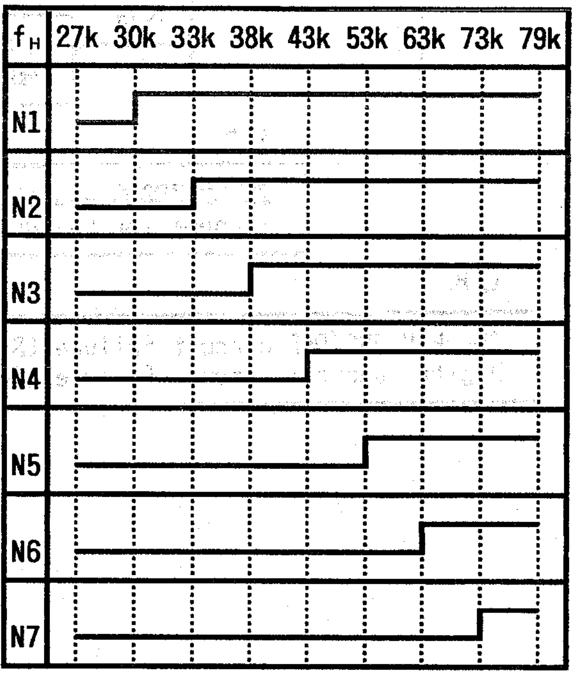
Check 13V Line (Measure the voltage at TP-861 on the VIDEO PWB (PWE-352))

NG → R860, Q860, Q861 and their ambient circuit Failure

OK

Check Digital Control circuit output (N1~N7) (See Fig.1)

NG → Digital Control circuit Failure (See item 7)



(TTL level output)
Fig.1

OK

Check S-correction capacitor switching circuit (Check the operation of Q591~Q596 and C595~C59A)

NG →
- Q591~Q596, C595~C59A and their ambient circuit Failure
- Q50A~Q55A and Q58A, IC510~IC511 and their ambient circuit Failure

CONTINUE

CONTINUE

OK

Check if P2 voltage is changeable by SW108,SW109

(Measure the voltage at P2 on the DEF PWB (PWE-329))

Normally, the voltage is changeable from approx 1V to approx 11V

NG

Digital Control circuit Failure (See item 7)

OK

Check Q581 F.B.P. (See Fig.2)

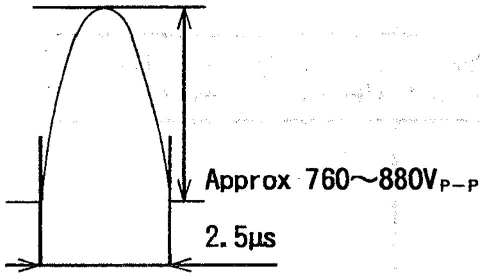


Fig.2

NG

- Q581,C581,C582 and their ambient circuit Failure
- IC5G0,IC5G1,T581 and their ambient circuit Failure

OK

Check Horizontal Linearity correction circuit (See item 4-5-1)

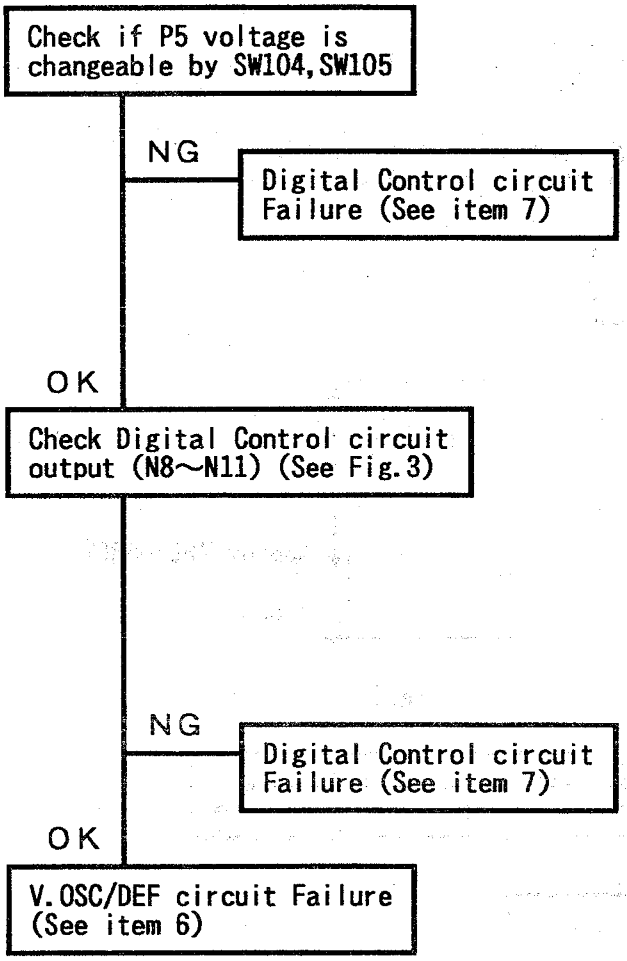
OK

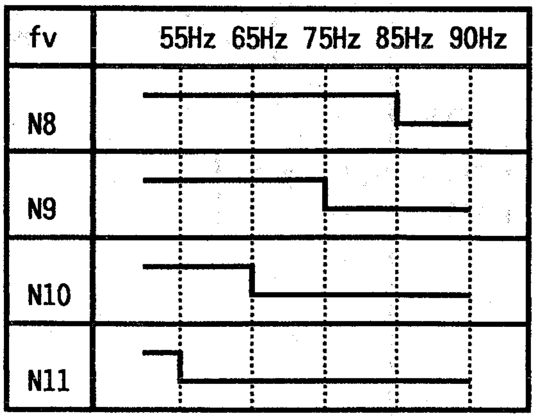
Check Side-pin correction circuit (See item 4-6)

OK

H OSC/DEF/HV circuit Failure (See item 5)

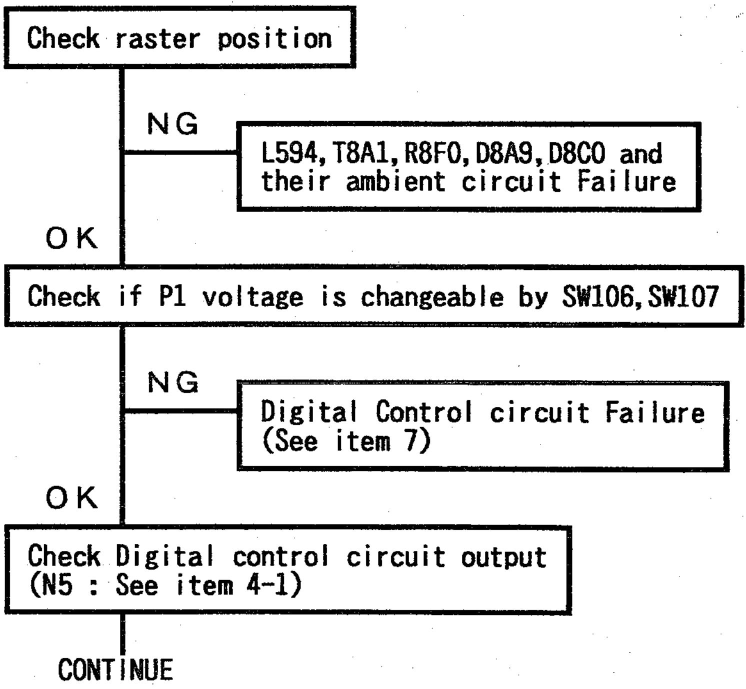
4-2) Vertical Size

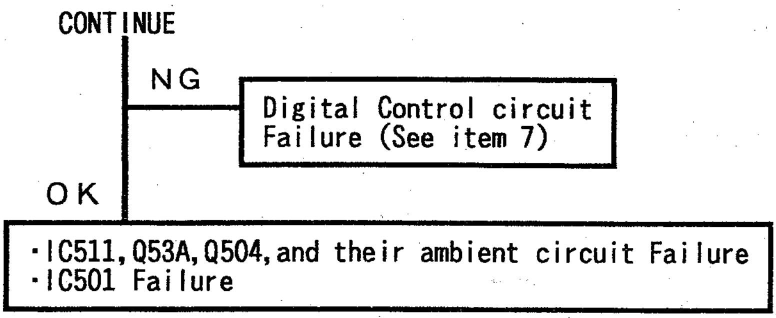

Check if P5 voltage is changeable by SW104,SW105
NG
Digital Control circuit Failure (See item 7)
OK
Check Digital Control circuit output (N8～N11) (See Fig.3)
NG
Digital Control circuit Failure (See item 7)
OK
V.OSC/DEF circuit Failure (See item 6)


fv
55Hz 65Hz 75Hz 85Hz 90Hz
N8
N9
N10
N11

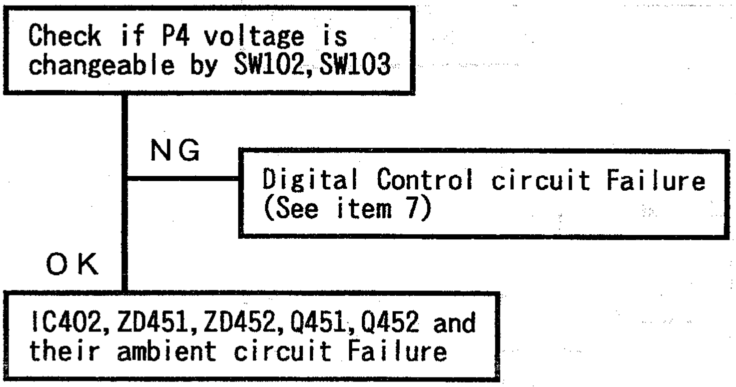
(TTL level output)
Fig.3

4-3) Horizontsl position


Check raster position
NG
L594,T8A1,R8F0,D8A9,D8C0 and their ambient circuit Failure
OK
Check if P1 voltage is changeable by SW106,SW107
NG
Digital Control circuit Failure (See item 7)
OK
Check Digital control circuit output (N5 : See item 4-1)
CONTINUE

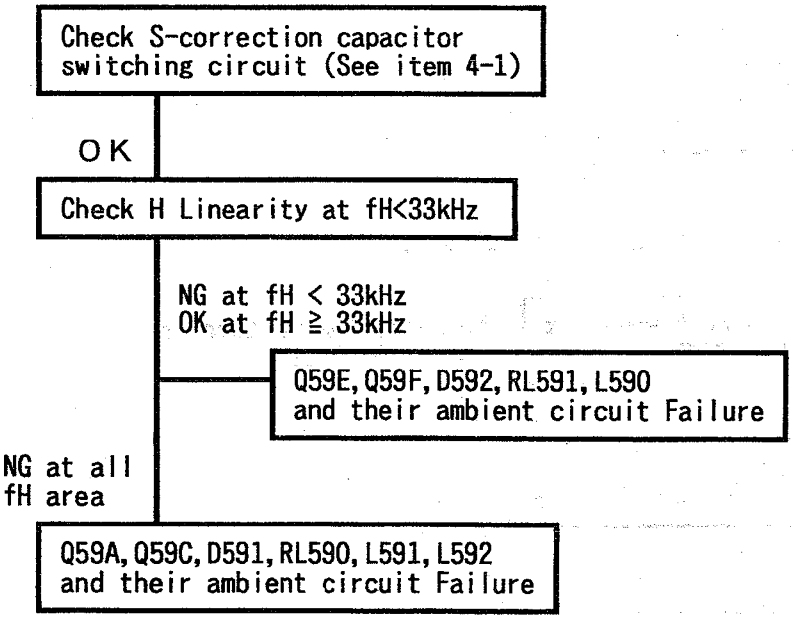

CONTINUE
NG
Digital Control circuit Failure (See item 7)
OK
·IC511,Q53A,Q504,and their ambient circuit Failure
·IC501 Failure

4-4) Vertical Position


Check if P4 voltage is changeable by SW102,SW103
NG
Digital Control circuit Failure (See item 7)
OK
IC402,ZD451,ZD452,Q451,Q452 and their ambient circuit Failure

4-5) Poor Linearity

4-5-1) Horizontal

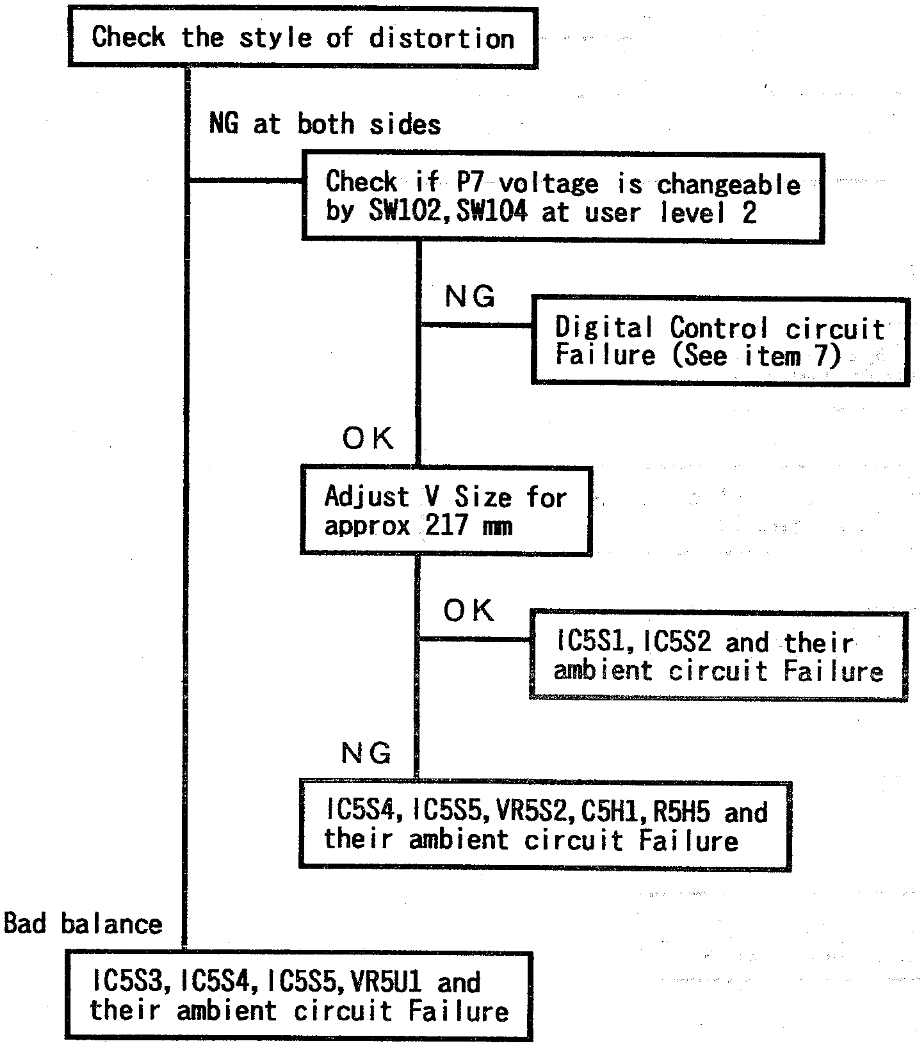

Check S-correction capacitor switching circuit (See item 4-1)
OK
Check H Linearity at fH<33kHz
NG at fH < 33kHz
OK at fH ≧ 33kHz
Q59E,Q59F,D592,RL591,L590 and their ambient circuit Failure
NG at all fH area
Q59A,Q59C,D591,RL590,L591,L592 and their ambient circuit Failure

4-5-2) Vertical

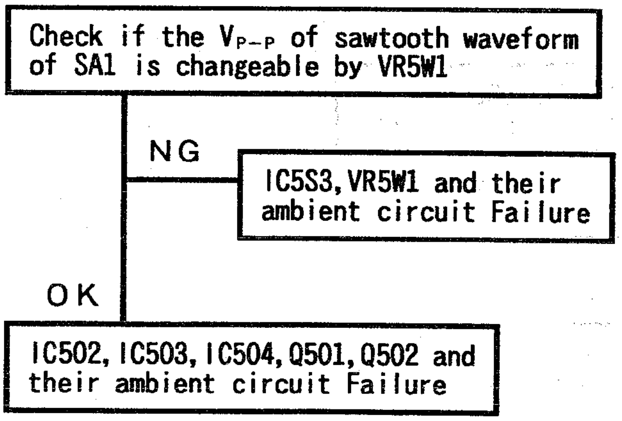
C410,VR441,IC431 and their ambient circuit Failure

4-6) Distortion Correction circuit Fault

4-6-1) Side pin cushion correction circuit

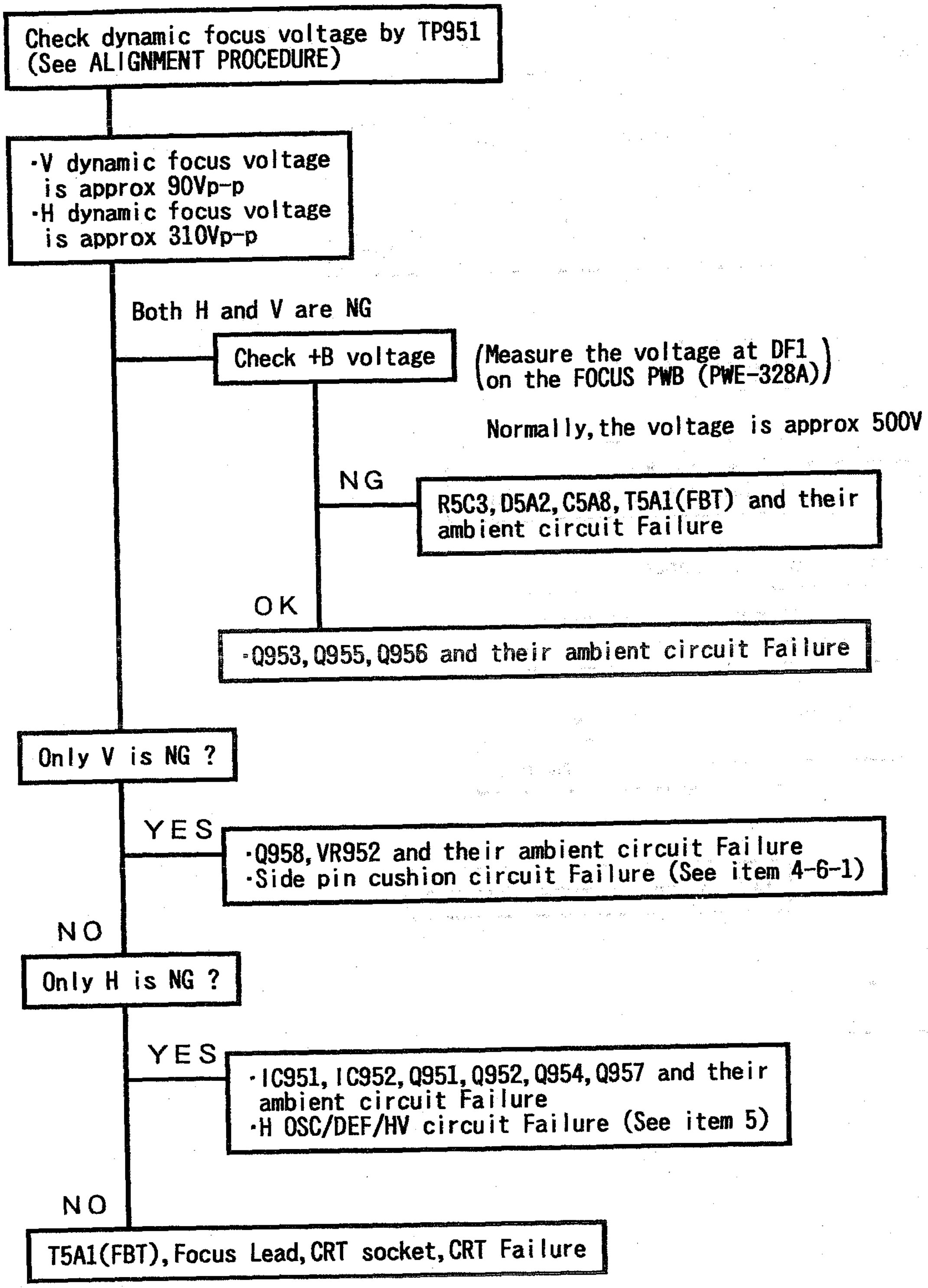

Check the style of distortion
NG at both sides
Check if P7 voltage is changeable by SW102,SW104 at user level 2
NG
Digital Control circuit Failure (See item 7)
OK
Adjust V Size for approx 217 mm
OK
IC5S1,IC5S2 and their ambient circuit Failure
NG
IC5S4,IC5S5,VR5S2,C5H1,R5H5 and their ambient circuit Failure
Bad balance
IC5S3,IC5S4,IC5S5,VR5U1 and their ambient circuit Failure

4-6-2) Parallelogram distortion correction circuit

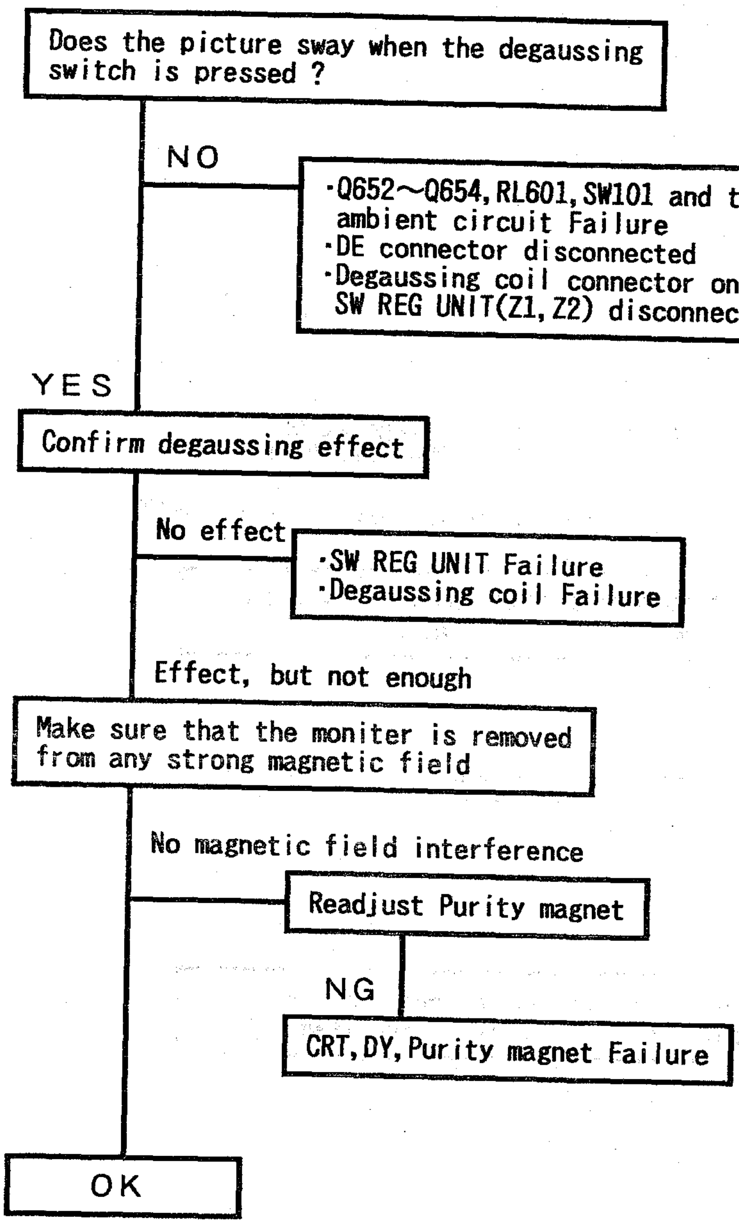

Check if the Vp-p of sawtooth waveform of SA1 is changeable by VR5W1
NG
IC5S3,VR5W1 and their ambient circuit Failure
OK
IC502,IC503,IC504,Q501,Q502 and their ambient circuit Failure

Normally, the voltage is approx 0~0.11V_{P-P}

4-7) Poor Focus

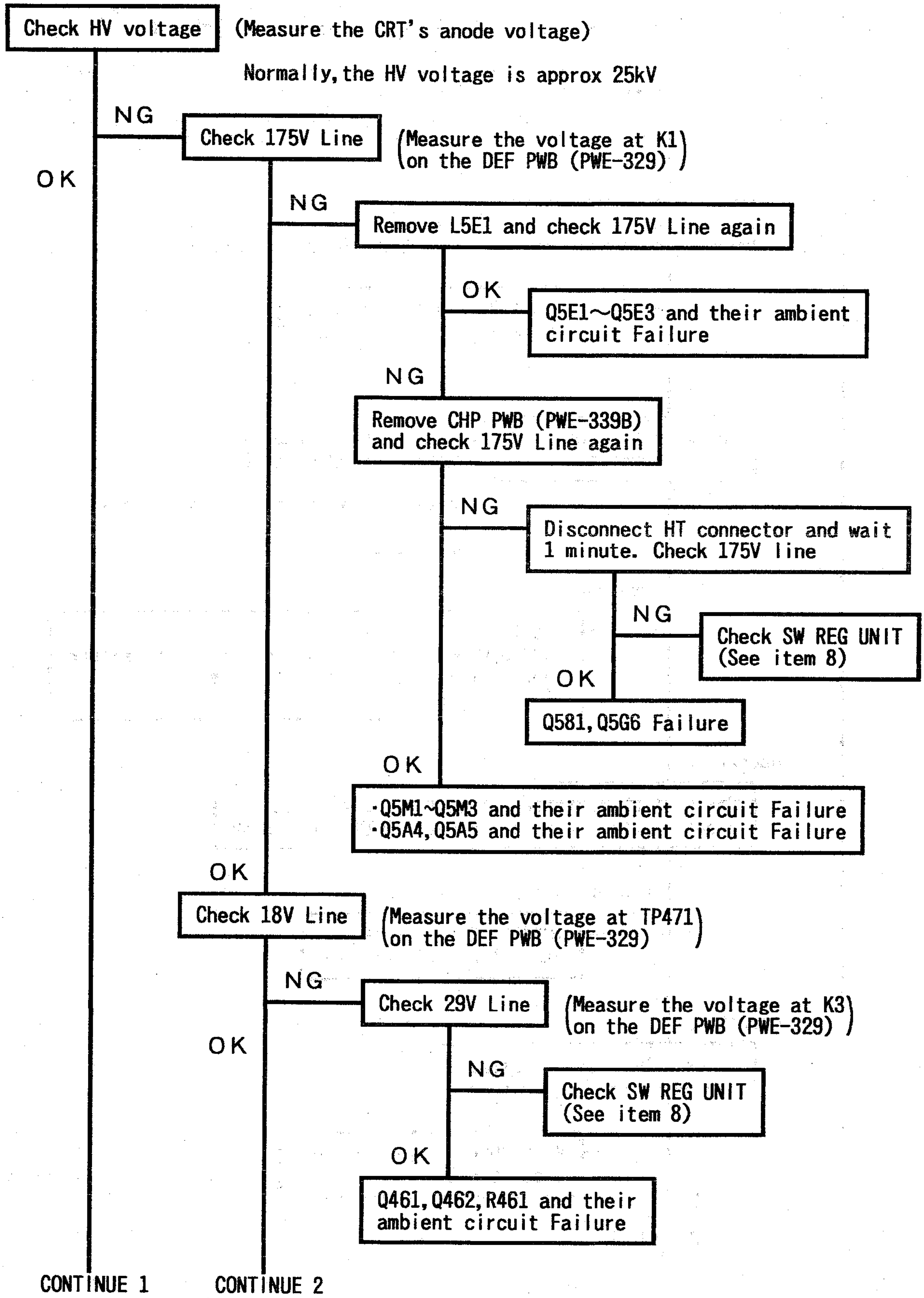

Check dynamic focus voltage by TP951 (See ALIGNMENT PROCEDURE)
·V dynamic focus voltage is approx 90Vp-p
·H dynamic focus voltage is approx 310Vp-p
Both H and V are NG
Check +B voltage
(Measure the voltage at DF1 on the FOCUS PWB (PWE-328A))
Normally, the voltage is approx 500V
NG
R5C3, D5A2, C5A8, T5A1(FBT) and their ambient circuit Failure
OK
·Q953, Q955, Q956 and their ambient circuit Failure
Only V is NG ?
YES
·Q958, VR952 and their ambient circuit Failure
·Side pin cushion circuit Failure (See item 4-6-1)
NO
Only H is NG ?
YES
·IC951, IC952, Q951, Q952, Q954, Q957 and their ambient circuit Failure
·H OSC/DEF/HV circuit Failure (See item 5)
NO
T5A1(FBT), Focus Lead, CRT socket, CRT Failure

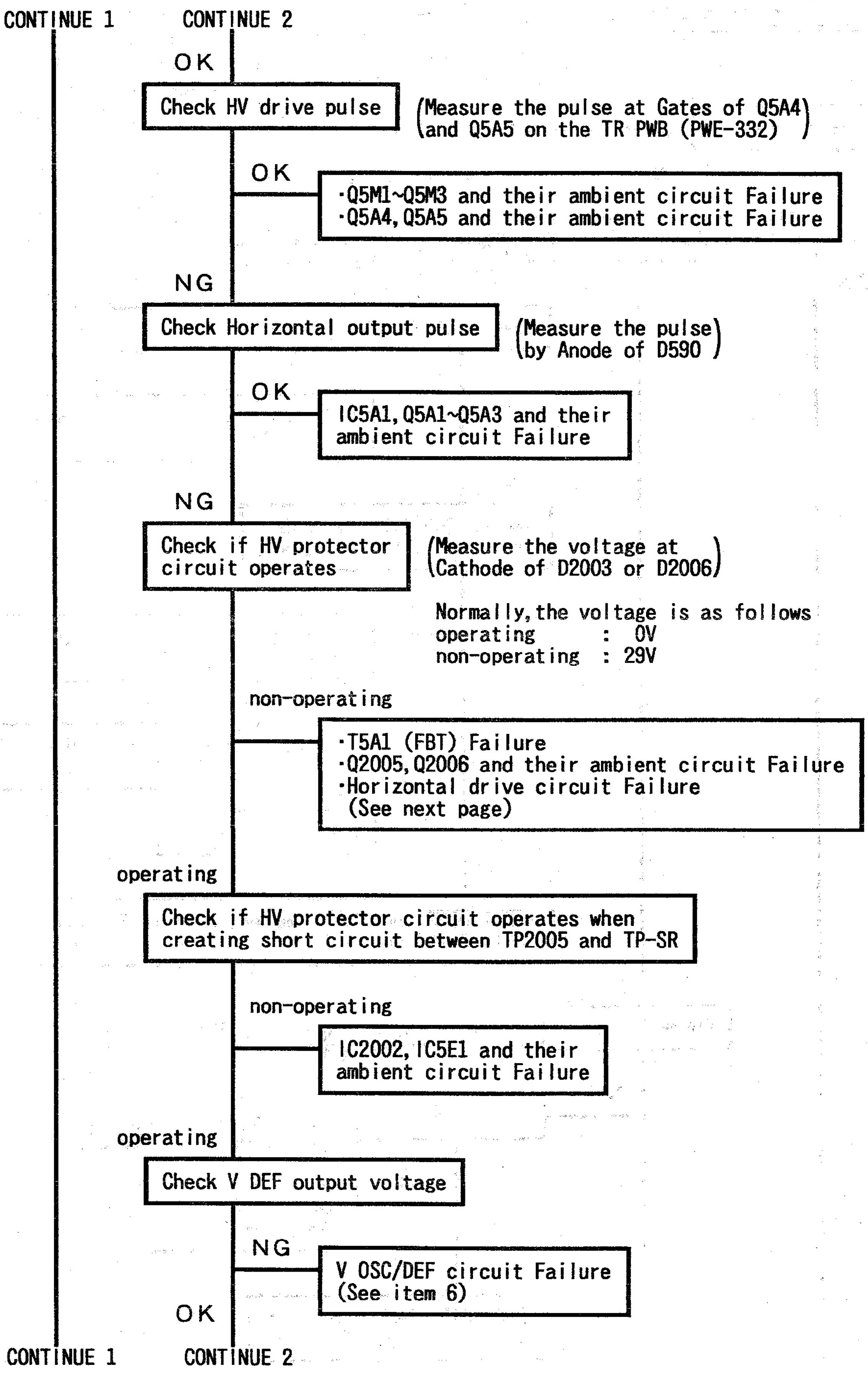
4-8) Impurity On CRT Screen

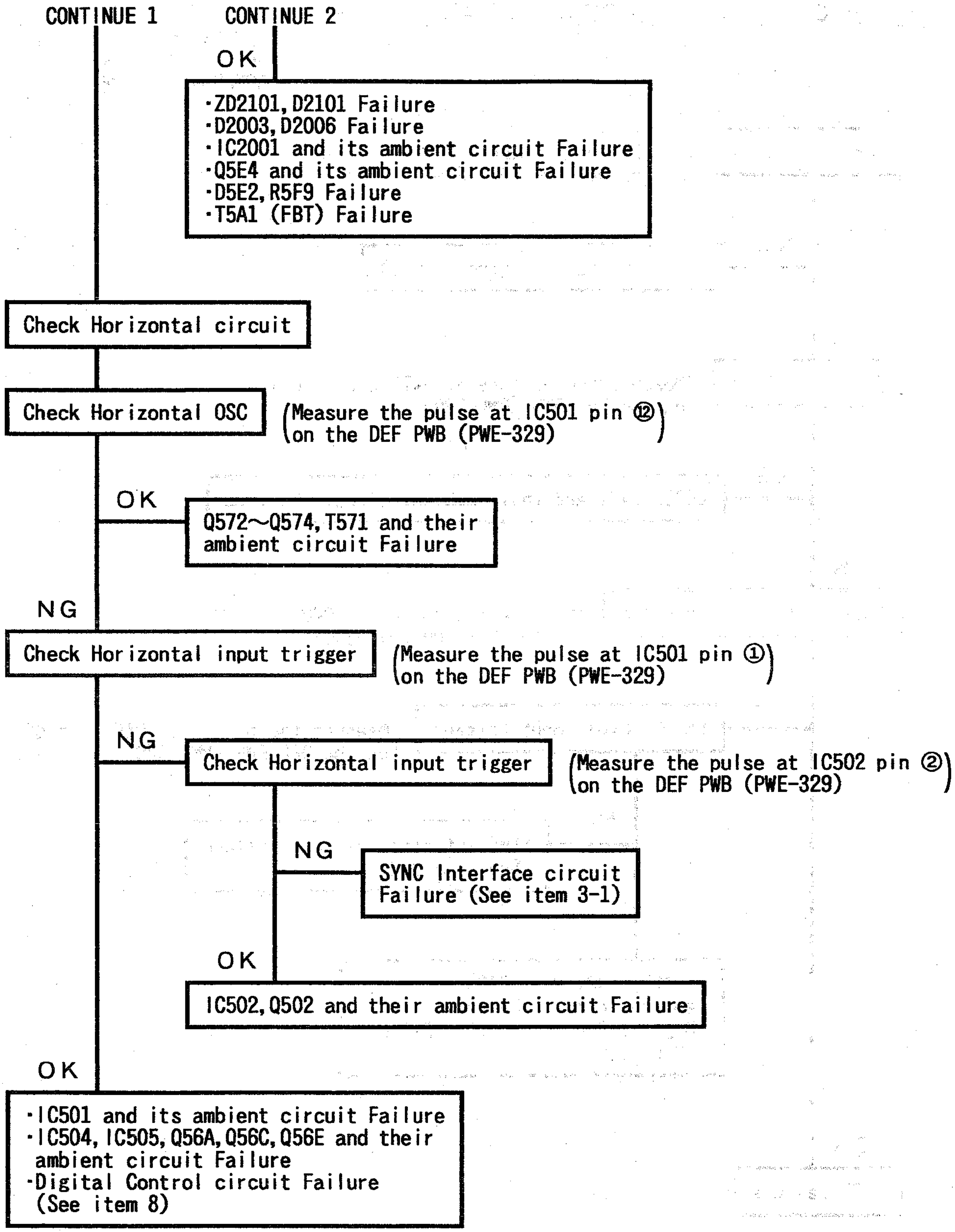

Does the picture sway when the degaussing switch is pressed ?
NO
·Q652~Q654,RL601,SW101 and their ambient circuit Failure
·DE connector disconnected
·Degaussing coil connector on the SW REG UNIT(Z1,Z2) disconnected
YES
Confirm degaussing effect
No effect
·SW REG UNIT Failure
·Degaussing coil Failure
Effect, but not enough
Make sure that the moniter is removed from any strong magnetic field
No magnetic field interference
Readjust Purity magnet
NG
CRT,DY,Purity magnet Failure
OK

5. H OSC/DEF/HV CIRCUIT FAILURE

NO RASTER
UNSTABLE PICTURE
ABNORMAL PICTURE


Check HV voltage
(Measure the CRT's anode voltage)
Normally, the HV voltage is approx 25kV
NG
Check 175V Line
(Measure the voltage at K1 on the DEF PWB (PWE-329))
OK
NG
Remove L5E1 and check 175V Line again
OK
Q5E1~Q5E3 and their ambient circuit Failure
NG
Remove CHP PWB (PWE-339B) and check 175V Line again
NG
Disconnect HT connector and wait 1 minute. Check 175V line
NG
Check SW REG UNIT (See item 8)
OK
Q581, Q5G6 Failure
OK
·Q5M1~Q5M3 and their ambient circuit Failure
·Q5A4, Q5A5 and their ambient circuit Failure
OK
Check 18V Line
(Measure the voltage at TP471 on the DEF PWB (PWE-329))
NG
Check 29V Line
(Measure the voltage at K3 on the DEF PWB (PWE-329))
OK
NG
Check SW REG UNIT (See item 8)
OK
Q461, Q462, R461 and their ambient circuit Failure
CONTINUE 1
CONTINUE 2

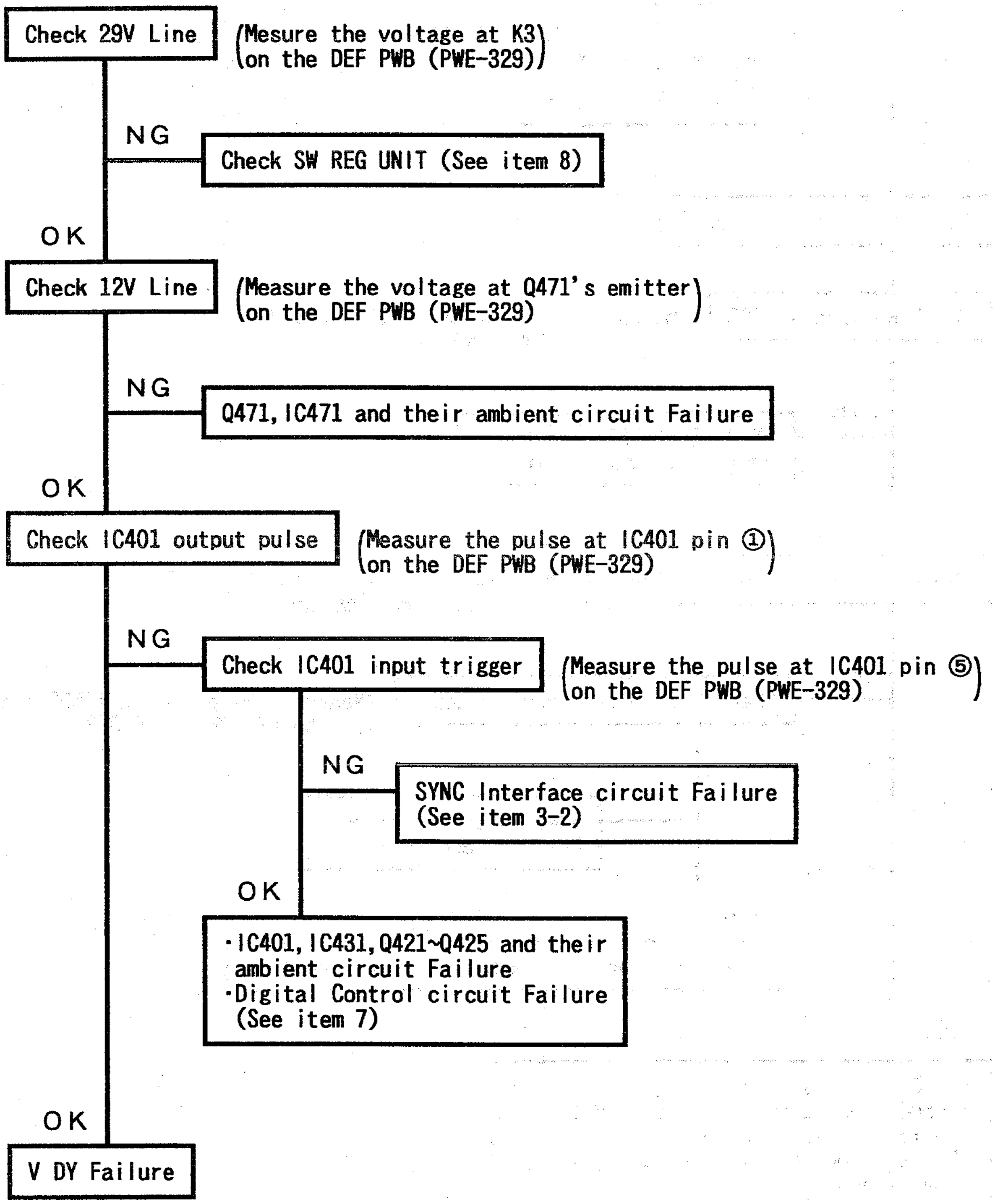

CONTINUE 1
CONTINUE 2
OK
Check HV drive pulse
(Measure the pulse at Gates of Q5A4 and Q5A5 on the TR PWB (PWE-332))
OK
·Q5M1~Q5M3 and their ambient circuit Failure
·Q5A4,Q5A5 and their ambient circuit Failure
NG
Check Horizontal output pulse
(Measure the pulse by Anode of D590)
OK
IC5A1,Q5A1~Q5A3 and their ambient circuit Failure
NG
Check if HV protector circuit operates
(Measure the voltage at Cathode of D2003 or D2006)
Normally,the voltage is as follows
operating : 0V
non-operating : 29V
non-operating
·T5A1 (FBT) Failure
·Q2005,Q2006 and their ambient circuit Failure
·Horizontal drive circuit Failure
(See next page)
operating
Check if HV protector circuit operates when creating short circuit between TP2005 and TP-SR
non-operating
IC2002,IC5E1 and their ambient circuit Failure
operating
Check V DEF output voltage
NG
V OSC/DEF circuit Failure
(See item 6)
OK
CONTINUE 1
CONTINUE 2


CONTINUE 1
CONTINUE 2
OK
·ZD2101, D2101 Failure
·D2003, D2006 Failure
·IC2001 and its ambient circuit Failure
·Q5E4 and its ambient circuit Failure
·D5E2, R5F9 Failure
·T5A1 (FBT) Failure
Check Horizontal circuit
Check Horizontal OSC
(Measure the pulse at IC501 pin ⑫ on the DEF PWB (PWE-329))
OK
Q572~Q574, T571 and their ambient circuit Failure
NG
Check Horizontal input trigger
(Measure the pulse at IC501 pin ① on the DEF PWB (PWE-329))
NG
Check Horizontal input trigger
(Measure the pulse at IC502 pin ② on the DEF PWB (PWE-329))
NG
SYNC Interface circuit Failure (See item 3-1)
OK
IC502, Q502 and their ambient circuit Failure
OK
·IC501 and its ambient circuit Failure
·IC504, IC505, Q56A, Q56C, Q56E and their ambient circuit Failure
·Digital Control circuit Failure (See item 8)

NOTE 1. Q5G6 and Q581 will be damaged at same time.
2. Q5M3 and Q5A4 or Q5A5 will be damaged at same time.

6. V OSC/DEF CIRCUIT FAILURE

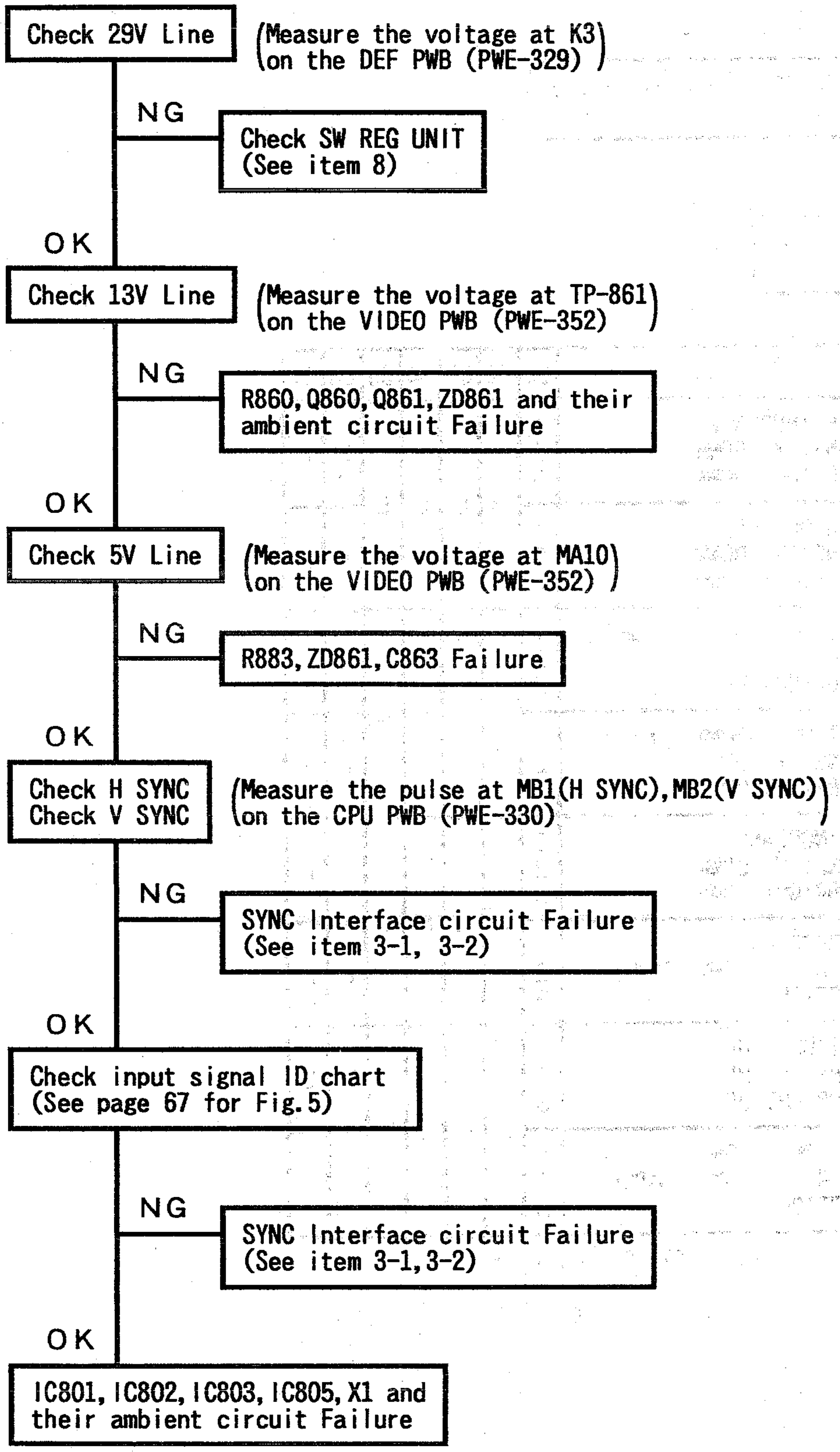
NO RASTER
UNSTABLE PICTURE
ABNORMAL PICTURE


Check 29V Line
(Mesure the voltage at K3 on the DEF PWB (PWE-329))
NG
Check SW REG UNIT (See item 8)
OK
Check 12V Line
(Measure the voltage at Q471's emitter on the DEF PWB (PWE-329))
NG
Q471, IC471 and their ambient circuit Failure
OK
Check IC401 output pulse
(Measure the pulse at IC401 pin ① on the DEF PWB (PWE-329))
NG
Check IC401 input trigger
(Measure the pulse at IC401 pin ⑤ on the DEF PWB (PWE-329))
NG
SYNC Interface circuit Failure (See item 3-2)
OK
·IC401, IC431, Q421~Q425 and their ambient circuit Failure
·Digital Control circuit Failure (See item 7)
OK
V DY Failure

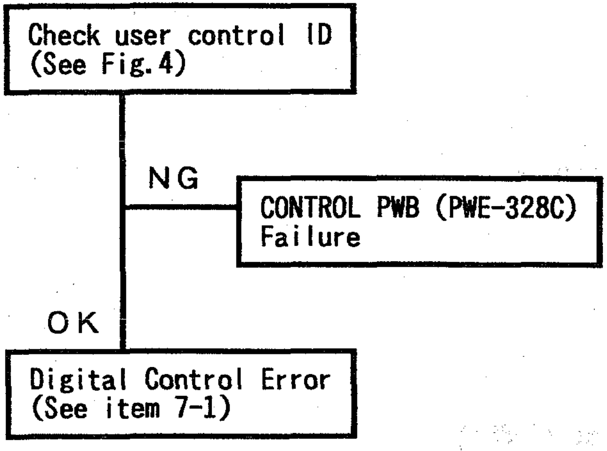
7. DIGITAL CONTROL CIRCUIT FAILURE

UNSTABLE PICTURE
ABNORMAL PICTURE

7-1) Digital Control Error


Check 29V Line
(Measure the voltage at K3 on the DEF PWB (PWE-329))
NG
Check SW REG UNIT (See item 8)
OK
Check 13V Line
(Measure the voltage at TP-861 on the VIDEO PWB (PWE-352))
NG
R860, Q860, Q861, ZD861 and their ambient circuit Failure
OK
Check 5V Line
(Measure the voltage at MA10 on the VIDEO PWB (PWE-352))
NG
R883, ZD861, C863 Failure
OK
Check H SYNC
Check V SYNC
(Measure the pulse at MB1(H SYNC), MB2(V SYNC) on the CPU PWB (PWE-330))
NG
SYNC Interface circuit Failure (See item 3-1, 3-2)
OK
Check input signal ID chart (See page 67 for Fig.5)
NG
SYNC Interface circuit Failure (See item 3-1, 3-2)
OK
IC801, IC802, IC803, IC805, X1 and their ambient circuit Failure

7-2) User Control Error


Check user control ID
(See Fig.4)
NG
CONTROL PWB (PWE-328C)
Failure
OK
Digital Control Error
(See item 7-1)

FUNCTION	UL	C2	C3	C4	C5	C6	C7
H WIDTH INCREASE	1	H	L	L	L	H	L
B INTENSITY DOWN	2						
B SUB-BRIGHT DOWN	3						
H WIDTH DECREASE	1					L	H
R INTENSITY DOWN	2						
R SUB-BRIGHT DOWN	3						
H POSITION UP (RIGHT)	1	L	H	L	L	H	L
B INTENSITY UP	2						
B SUB-BRIGHT UP	3						
H POSITION DOWN (LEFT)	1					L	H
R INTENSITY UP	2						
R SUB-BRIGHT UP	3						
V HGT INCREASE	1	L	L	H	L	H	L
G INTENSITY DOWN	2						
G SUB-BRIGHT DOWN	3						
V HGT DECREASE	1					L	H
SIDE-PIN DOWN (PIN)	2						
NO FUNCTION	3						
V POSITION UP	1	L	L	L	H	H	L
G INTENSITY UP	2						
G SUB-BRIGHT UP	3						
V POSITION DOWN	1					L	H
SIDE-PIN DOWN (BARREL)	2						
NO FUNCTION	3						

NOTE C2～C7 : TTL level

Fig. 4

INPUT SIGNAL	MB1 (fH)	MB2 (fV)	MA2 (HP)	MA3 (VP)	MA4 (VE)
VGA350	②	—	L	H	H
VGA400	②	—	H	L	H
VGA480	②	—	H	H	H
800*600(56)	③	①	—	—	—
MAC-II	③	③	—	—	—
8514A	③	④	L	L	H
1024*768(60)	⑤	⑤	—	—	—
800*600(72)	⑤	⑥	—	—	—
1024*768(70)	⑦	—	—	—	—
1280*1024(60)	⑨	⑤	—	—	—
1280*1024(70)	⑪	⑦	—	—	—
1280*1024(74)	⑪	⑧	—	—	—

INPUT SIGNAL	MB1 (fH)	MB2 (fV)	MA2 (HP)	MA3 (VP)	MA4 (VE)
USER 1	①	—	—	—	—
USER 2	②	—	—	—	—
USER 3	③	②	—	—	—
USER 4	③	④	L	H	H
USER 5	③	④	H	L	H
USER 6	③	④	H	H	H
USER 7	③	④	—	—	—
USER 8	④	⑤	—	—	—
USER 9	④	⑥	—	—	—
USER10	⑥	—	—	—	—
USER11	⑧	—	—	—	—
USER12	⑨	⑥	—	—	—
USER13	⑩	—	—	—	—

NOTE 1. MB1

① 27kHz $\leqq f_H <$ 29kHz
② 29kHz $\leqq f_H <$ 33kHz
③ 33kHz $\leqq f_H <$ 43kHz
④ 43kHz $\leqq f_H <$ 47kHz
⑤ 47kHz $\leqq f_H <$ 50kHz
⑥ 50kHz $\leqq f_H <$ 54kHz
⑦ 54kHz $\leqq f_H <$ 58kHz
⑧ 58kHz $\leqq f_V <$ 62kHz
⑨ 62kHz $\leqq f_V <$ 66kHz
⑩ 66kHz $\leqq f_V <$ 71kHz
⑪ 71kHz $\leqq f_V \leqq$ 79kHz

MB2

① 55Hz $\leqq f_V <$ 58Hz
② 58Hz $\leqq f_V <$ 63Hz
③ 63Hz $\leqq f_V <$ 70Hz
④ 70Hz $\leqq f_V \leqq$ 90Hz
⑤ 55Hz $\leqq f_V <$ 63Hz
⑥ 63Hz $\leqq f_V \leqq$ 90Hz
⑦ 55Hz $\leqq f_V <$ 73Hz
⑧ 73Hz $\leqq f_V \leqq$ 90Hz

2. MA2~MA4 : TTL level

3. "—" means any level enable

Fig.5

7-3) Memory Access Error

Check CPU mode cord
(See Fig.6)

FUNCTION	IC801		
	#52	#53	#54
USER CONTROL MODE	L	L	L
FACTORY ADJUST MODE 1 (PICTURE DATA)	L	L	H
FACTORY ADJUST MODE 2 (COLOR DATA)	L	H	L
FACTORY ADJUST MODE 3 (PICTURE DATA)	L	H	H
INITIALIZING SIDE PIN DATA	H	L	L
SPECIAL ADJUST RESET FLAG	H	H	H

NOTE #52~#54 : TTL level

Fig.6

NG

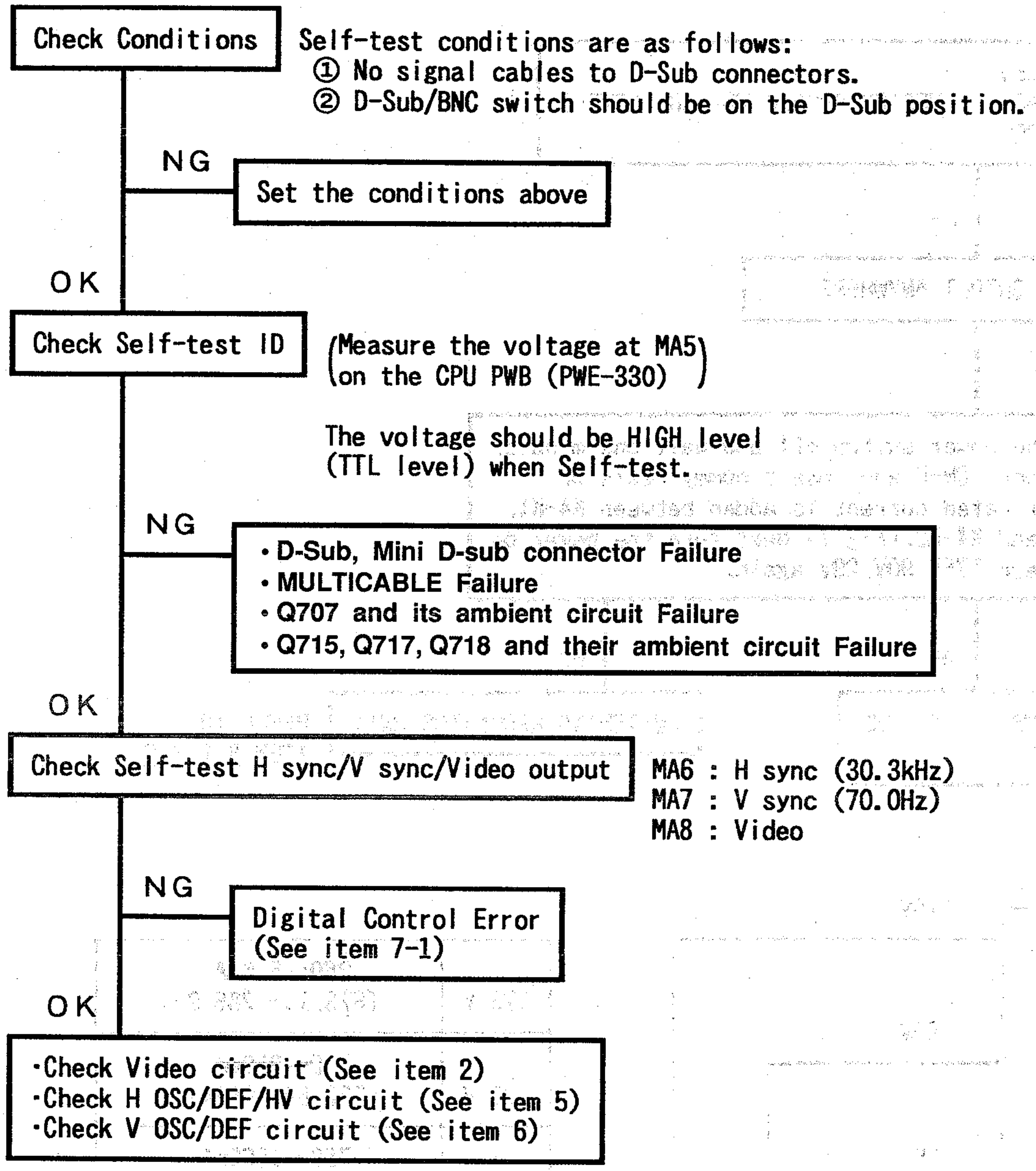
·CONTROL PWB (PWE-328C) Failure
·R850~R852 Failure

OK

Digital Control Error
(See item 7-1)

(Cf). If two different signals are put into this same memory location, the most recent signal will be written to this memory and the previous signal erased. Therefore, an error could occur when the microprocessor will have the same ID cordinates for two different signals.

7-4) Self test Error


Check Conditions
NG
Set the conditions above
OK
Check Self-test ID
NG
• D-Sub, Mini D-sub connector Failure
• MULTICABLE Failure
• Q707 and its ambient circuit Failure
• Q715, Q717, Q718 and their ambient circuit Failure
OK
Check Self-test H sync/V sync/Video output
NG
Digital Control Error
(See item 7-1)
OK
·Check Video circuit (See item 2)
·Check H OSC/DEF/HV circuit (See item 5)
·Check V OSC/DEF circuit (See item 6)

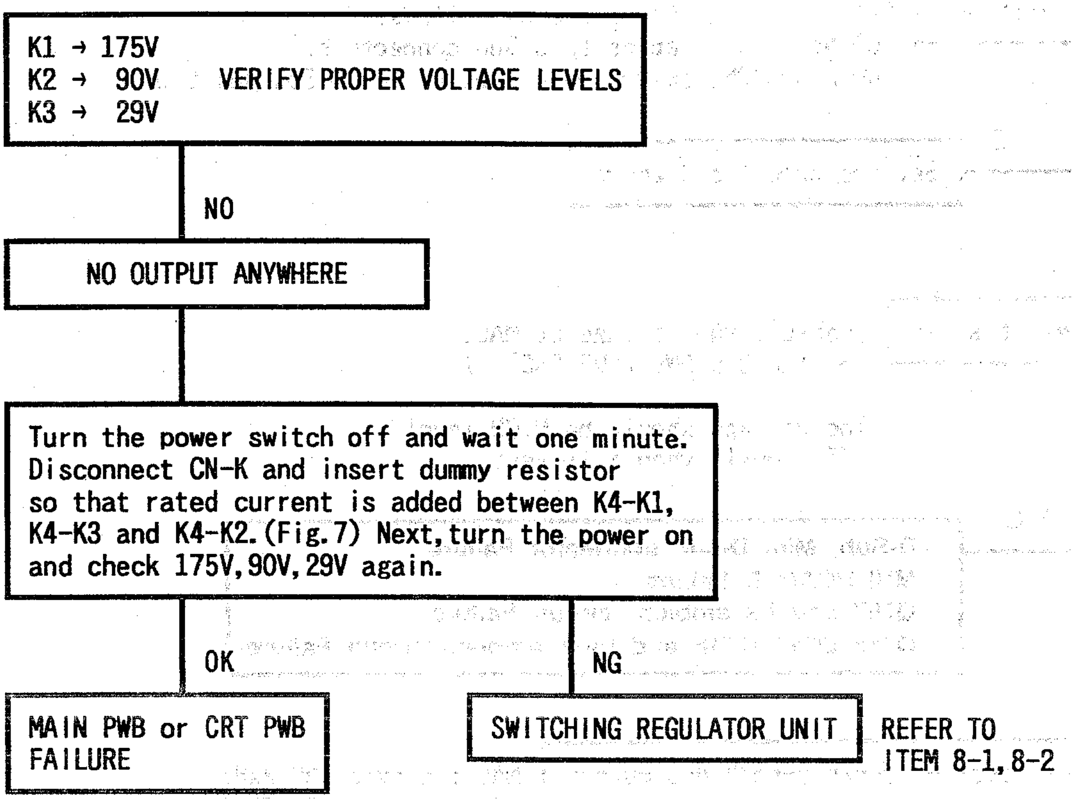
Self-test conditions are as follows:
① No signal cables to D-Sub connectors.
② D-Sub/BNC switch should be on the D-Sub position.

(Measure the voltage at MA5
on the CPU PWB (PWE-330))

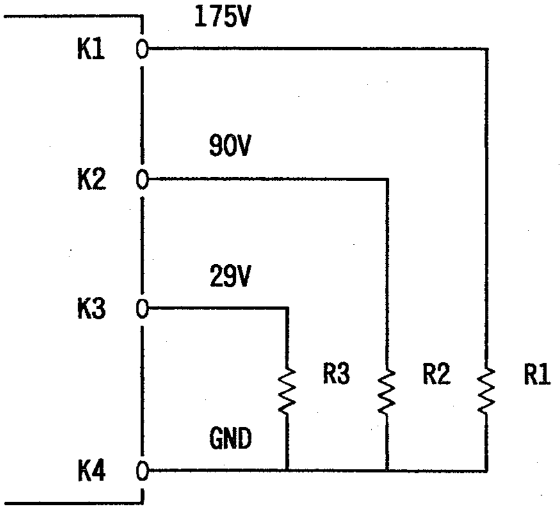
The voltage should be HIGH level
(TTL level) when Self-test.

MA6 : H sync (30.3kHz)
MA7 : V sync (70.0Hz)
MA8 : Video

8. SWITCHING REGULATOR UNIT (JC-1741UMA-3,(N)/B-3/B-3(EE)/R-3)


K1 → 175V
K2 → 90V
K3 → 29V
VERIFY PROPER VOLTAGE LEVELS
NO
NO OUTPUT ANYWHERE
OK
NG
MAIN PWB or CRT PWB FAILURE
SWITCHING REGULATOR UNIT
REFER TO ITEM 8-1,8-2

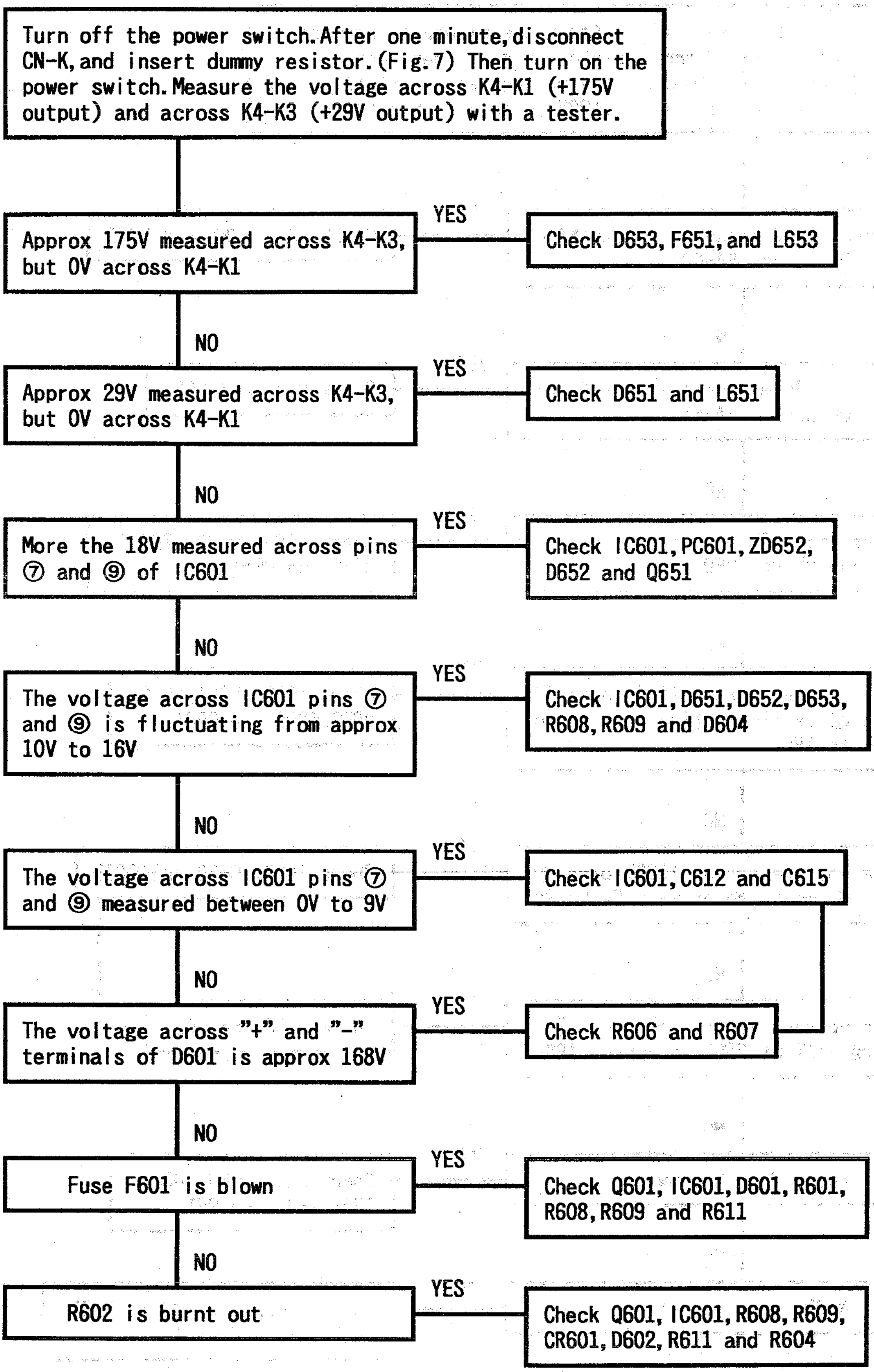
Turn the power switch off and wait one minute. Disconnect CN-K and insert dummy resistor so that rated current is added between K4-K1, K4-K3 and K4-K2.(Fig.7) Next, turn the power on and check 175V,90V,29V again.


175V
K1
90V
K2
29V
K3
R3
R2
R1
GND
K4

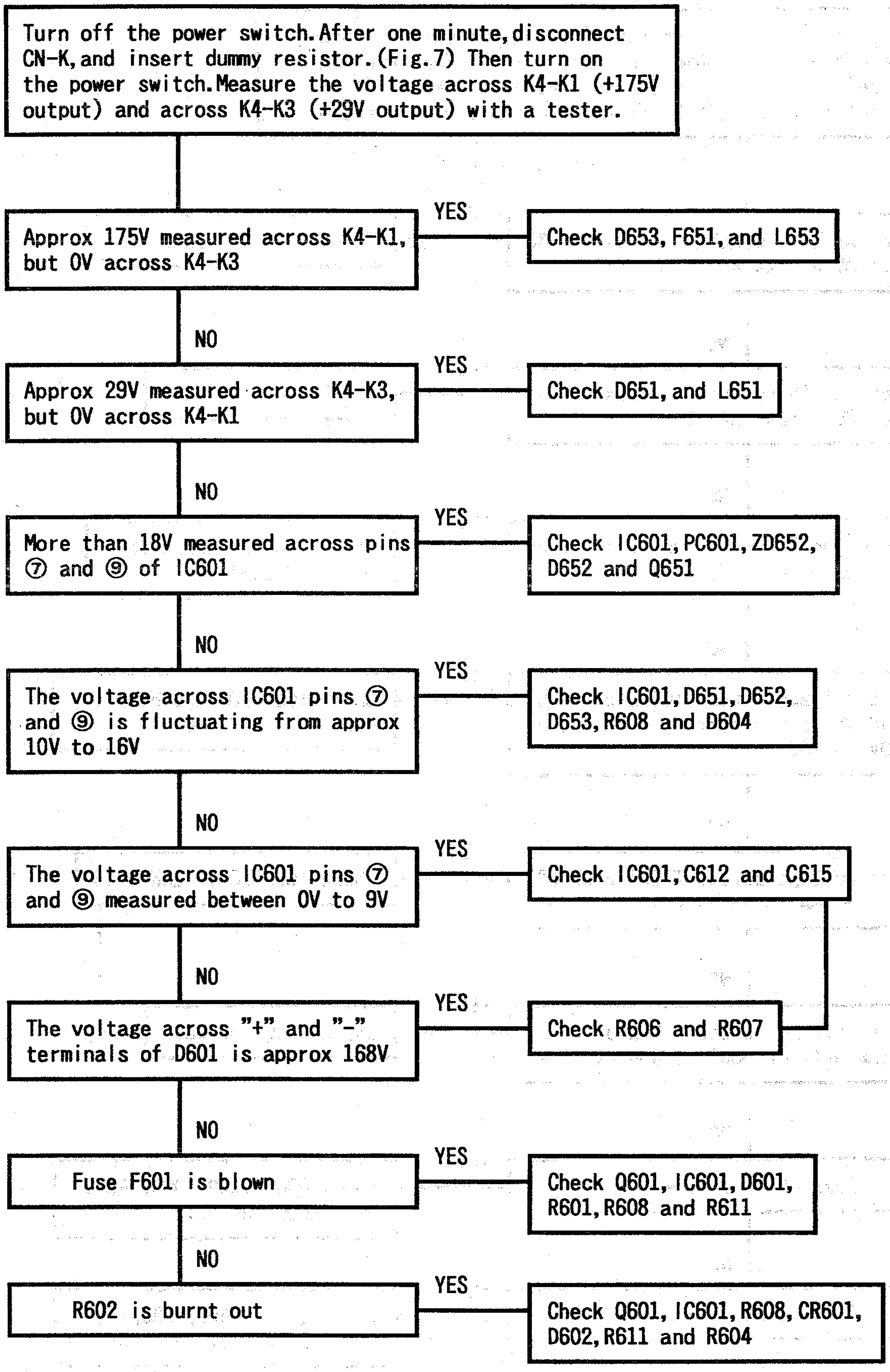
175 V	260~610mA (673.1Ω~286.9Ω)
90 V	0~390mA (230.8Ω~OPEN)
29 V	750~1600mA (38.7Ω~18.1Ω)

Fig.7 Rated load current at K1,K2,K3

8-1) THE SWITCHING REGULATOR UNIT FAILURE (JC-1741UMA-3,(N))


Turn off the power switch.After one minute,disconnect CN-K,and insert dummy resistor.(Fig.7) Then turn on the power switch.Measure the voltage across K4-K1 (+175V output) and across K4-K3 (+29V output) with a tester.
Approx 175V measured across K4-K3, but 0V across K4-K1
YES
Check D653,F651,and L653
NO
Approx 29V measured across K4-K3, but 0V across K4-K1
YES
Check D651 and L651
NO
More the 18V measured across pins ⑦ and ⑨ of IC601
YES
Check IC601,PC601,ZD652, D652 and Q651
NO
The voltage across IC601 pins ⑦ and ⑨ is fluctuating from approx 10V to 16V
YES
Check IC601,D651,D652,D653, R608,R609 and D604
NO
The voltage across IC601 pins ⑦ and ⑨ measured between 0V to 9V
YES
Check IC601,C612 and C615
NO
The voltage across "+" and "-" terminals of D601 is approx 168V
YES
Check R606 and R607
NO
Fuse F601 is blown
YES
Check Q601,IC601,D601,R601, R608,R609 and R611
NO
R602 is burnt out
YES
Check Q601,IC601,R608,R609, CR601,D602,R611 and R604

8-2) THE SWITCHING REGULATOR UNIT FAILURE (JC-1741UMB-3/B-3(EE)/R-3)


Turn off the power switch. After one minute, disconnect CN-K, and insert dummy resistor. (Fig.7) Then turn on the power switch. Measure the voltage across K4-K1 (+175V output) and across K4-K3 (+29V output) with a tester.
Approx 175V measured across K4-K1, but 0V across K4-K3
YES
Check D653, F651, and L653
NO
Approx 29V measured across K4-K3, but 0V across K4-K1
YES
Check D651, and L651
NO
More than 18V measured across pins ⑦ and ⑨ of IC601
YES
Check IC601, PC601, ZD652, D652 and Q651
NO
The voltage across IC601 pins ⑦ and ⑨ is fluctuating from approx 10V to 16V
YES
Check IC601, D651, D652, D653, R608 and D604
NO
The voltage across IC601 pins ⑦ and ⑨ measured between 0V to 9V
YES
Check IC601, C612 and C615
NO
The voltage across "+" and "-" terminals of D601 is approx 168V
YES
Check R606 and R607
NO
Fuse F601 is blown
YES
Check Q601, IC601, D601, R601, R608 and R611
NO
R602 is burnt out
YES
Check Q601, IC601, R608, CR601, D602, R611 and R604

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1. Interface Circuit

1.1 Regulator

1.1.1 +12V Regulator

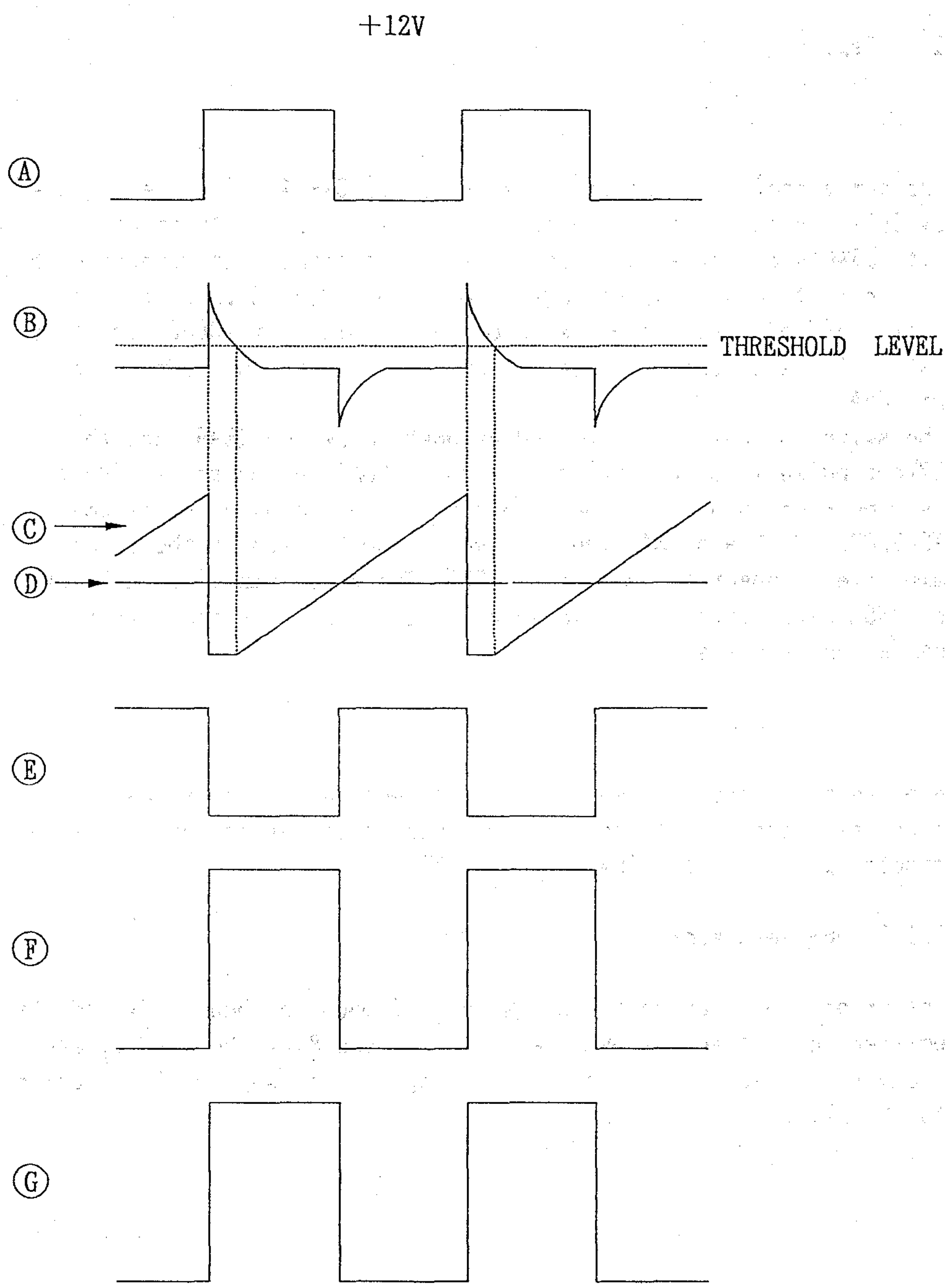
The horizontal oscillation pulse is fed to CN-X4 and differentiated by CA81 and the Q8A5's internal resistors to turn Q8A5 on and off. With Q8A6's discharge,a sawtooth wave is generated and then applied to pin ⑤ of IC842.This voltage is compared with DC voltage at pin ⑥ of IC8A2 a switching pulse is output to pin ⑦ of IC8A2.(The duty ratio of the switching pulse is determined by the DC level of pin ⑥ of IC8A2.)
The switching pulse is inverted by Q8A8 to switch Q8A9, and the 27Vp-p pulse is output to the source of Q8A9.The pulse of 27Vp-p is converted into DC by the smoothing circuit consisting of D8A7, T8A1,C8C1,C8C2,and L8A2.The DC level is controlled by the error amplifier connected to pin ⑥ of IC8A2.The error amplifier consists of VR8A1,IC8A1,other associated circuit.It controls the duty ratio of switching pulse.

1.1.2 -12V Regulator

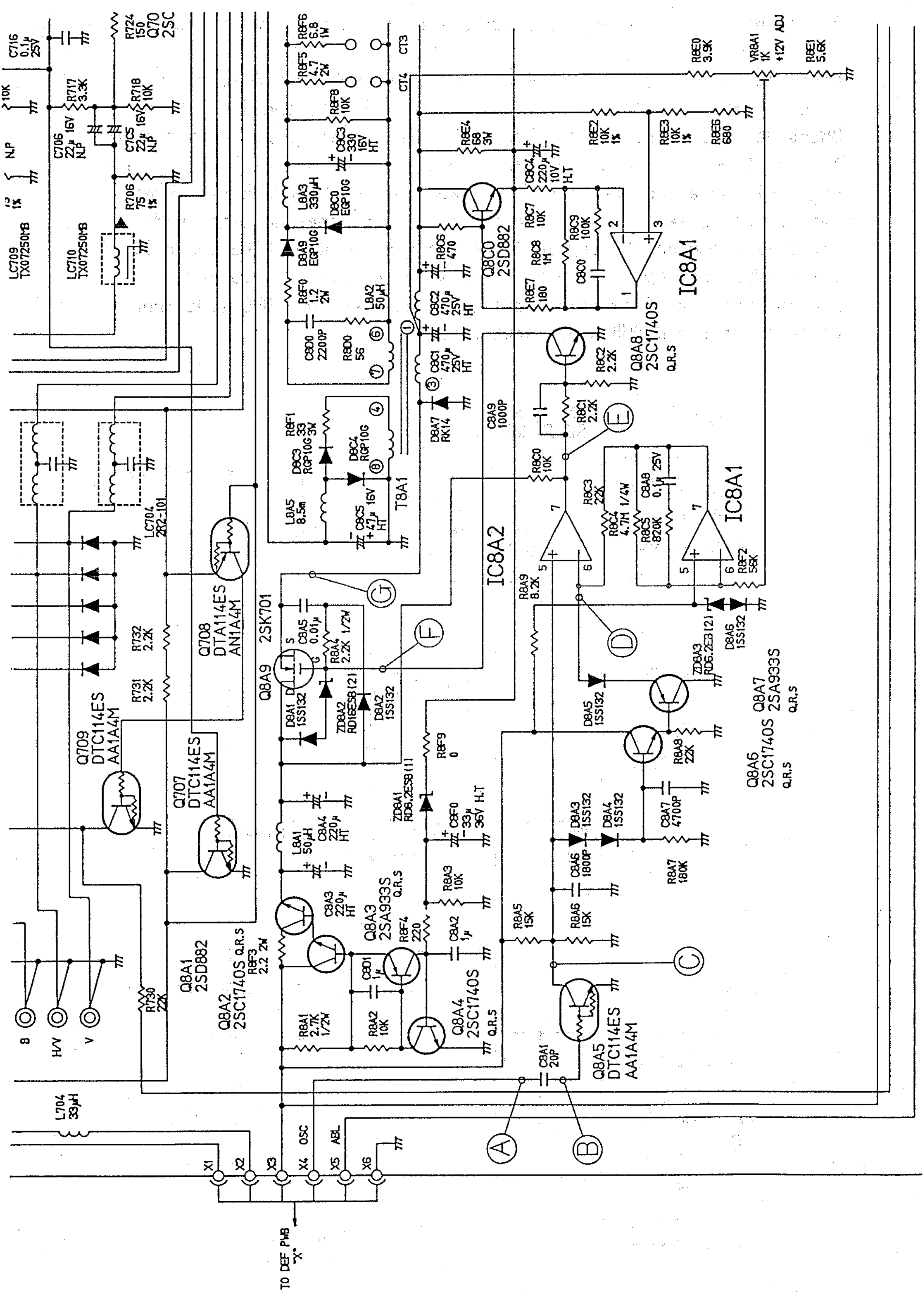
A pulse of 50Vp-p is taken out to the secondary side of T8A1 in the +12V regulator,and its negative voltage is converted into DC by the smoothing circuit of D8C4,L8A5,and C8C5.

1.1.3 +6V Regulator

The error amplifier controls the base of Q8C0 to about 6.6V and its emitter to 6V.When the 6V power line exceeds 8.2V the overvoltage protection circuit is turned on,cutting off the supply of the power to the 12V power circuit.


+12V
Ⓐ
Ⓑ
THRESHOLD LEVEL
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Ⓖ

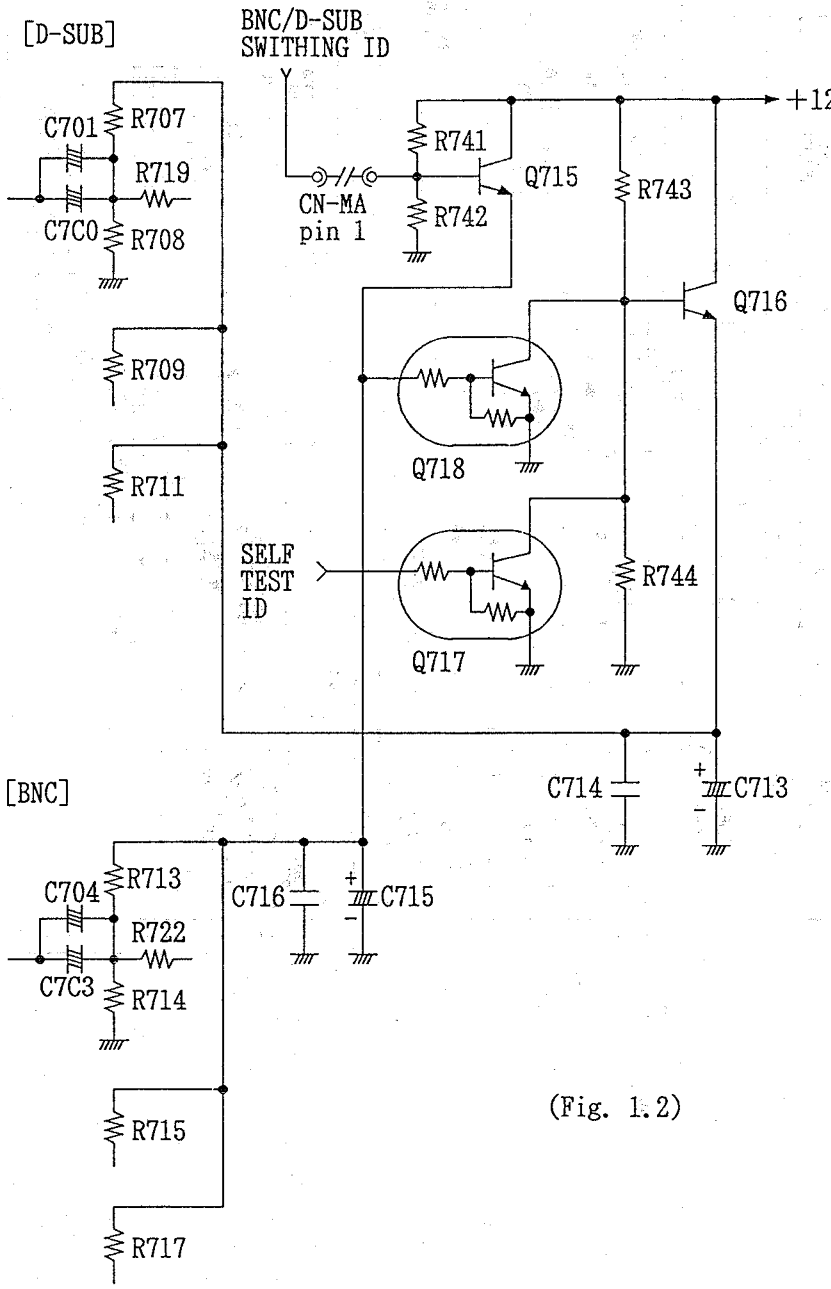
(Fig. 1.1.a)


C716 0.1μ 25V
R724 150
Q70 2SC
R717 3.3K
R718 10K
C706 22μ 16V NP
C705 22μ 16V NP
R706 75 1%
LC709 TX0725OMB
LC710 TX0725OMB
LC704 2R2-101
R732 2.2K
R731 2.2K
Q708 DTA114ES AN1A4M
Q709 DTC114ES AA1A4M
Q707 DTC114ES AA1A4M
R730 22K
B
H/V
V
L704 33μH
Q8A1 2SD882
Q8A2 2SC1740S Q.R.S
R8F3 2.2 2W
R8A1 2.7K 1/2W
R8A2 10K
C8D1 1μ
Q8A3 2SA933S Q.R.S
R8F4 220
C8A2 1μ
Q8A4 2SC1740S Q.R.S
C8A3 220μ HT
L8A1 50μH
C8A4 220μ HT
R8A3 10K
C8F0 33μ 35V H.T
ZD8A1 RD6.2ESB(1)
R8F9 0
Q8A9 2SK701
D8A1 1SS132
ZD8A2 RD16ESB(2)
D8A2 1SS132
R8A4 2.2K 1/2W
C8A5 0.01μ
L8A5 8.5m
C8C5 47μ 16V HT
D8C3 RGP10G
D8C4 RGP10G
R8F1 33 3W
T8A1
C8D0 2200P
R8D0 56
R8F0 1.2 2W
D8A9 EGP10G
D8C0 EGP10G
L8A2 50μH
L8A3 330μH
C8C3 330 16V HT
R8F8 10K
R8F5 4.7 2W
R8F6 6.8 1W
CT3
CT4
D8A7 RK14
C8C1 470μ 25V HT
C8C2 470μ 25V HT
R8C6 470
Q8C0 2SD882
R8E4 68 3W
C8C4 220μ 10V H.T
R8E7 180
R8C8 1M
R8C7 10K
R8C9 100K
C8C0
R8E2 10K 1%
R8E3 10K 1%
R8E6 680
R8E0 3.5K
VR8A1 1K +12V ADJ
R8E1 5.6K
IC8A1
IC8A2
Q8A8 2SC1740S Q.R.S
R8C2 2.2K
R8C1 2.2K
C8A9 1000P
R8C0 10K
R8C3 22K
R8C4 4.7M 1/4W
R8C5 820K
C8A8 0.1μ 25V
R8F2 56K
R8A9 8.2K
D8A6 1SS132
ZD8A3 RD6.2EB(2)
Q8A7 2SA933S Q.R.S
D8A5 1SS132
Q8A6 2SC1740S Q.R.S
R8A8 22K
C8A7 4700P
D8A3 1SS132
D8A4 1SS132
R8A7 180K
C8A6 1800P
R8A5 15K
R8A6 15K
Q8A5 DTC114ES AA1A4M
C8A1 20P
A
B
C
D
E
F
G
X1
X2
X3
X4
X5
X6
OSC
ABL
TO DEF PWB "X"

(Fig. 1. 1. b)

1.2 BNC/D-SUB Switching Circuit

The front panel mounted BNC/D-SUB switch selects which of these two inputs will be active.
When the switch is set to the BNC position, CN-MA pin ① is placed into an open state, applying the bias to R713, R715, and R717 of the BNC-side input circuit to allow the video signal to go through them. At that time, Q716 does not come on because the base of Q718 is high in level. Therefore, the bias is not applied to the D-SUB side. When the switch is set to the D-SUB position, Q716 comes on with CN-MA pin ① is grounded, thereby applying the bias to R707, R709, and R711 of the D-SUB side input circuit. In the self test, Q717 is turned on, to prevent the bias from being applied to neither the BNC-side input circuit nor the D-SUB side input circuit.


[D-SUB]
BNC/D-SUB
SWITHING ID
+12V
C701
R707
R719
C7C0
R708
R741
Q715
R743
CN-MA
pin 1
R742
Q716
R709
Q718
R711
SELF
TEST
ID
R744
Q717
[BNC]
C714
C713
R713
C704
R722
C7C3
R714
C716
C715
R715
R717

(Fig. 1.2)

1.3 Sync Interface Circuit

When D-SUB is input:

The horizontal sync signal is fed to pin ② of IC8G2,and shaped at pin ⑦,and then output.The signal is made about 1.4Vp-p by D8H2 and D8H3 output to pin ⑥.The vertical sync signal is fed to pin ③ of IC8G1,shaped at pin ①,and then output.This signal is fed to pin ⑧ of IC8G3.

When BNC is Input:

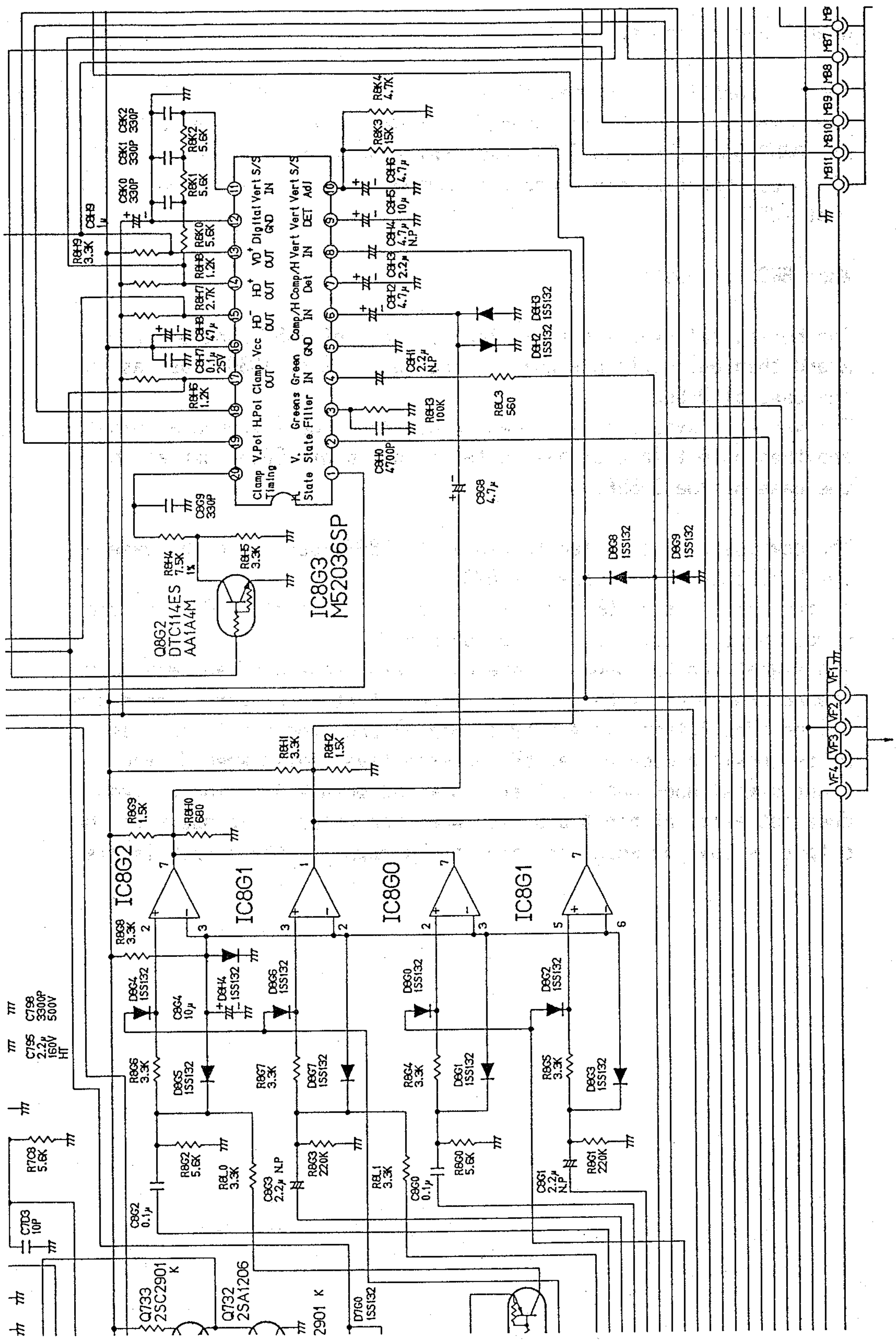
The horizontal sync signal is fed to pin ② of IC8G0,shaped at pin ⑦,and then output.This signal is fed to pin ⑥ of IC8G3,just as in the case of D-SUB.

The vertical sync signal is fed to pin ⑤ of IC8G1,shaped at pin ⑦, and then output.This signal is fed to pin ⑧ of IC8G3,just as in the case of the D-SUB.

The composite sync is fed to pin ⑥ of IC8G3,just as in the case of the horizontal sync signal of BNC.

In the case of sync ON input,it is fed to pin 4 of IC8G3 from the video input circuit for both D-SUB and BNC.

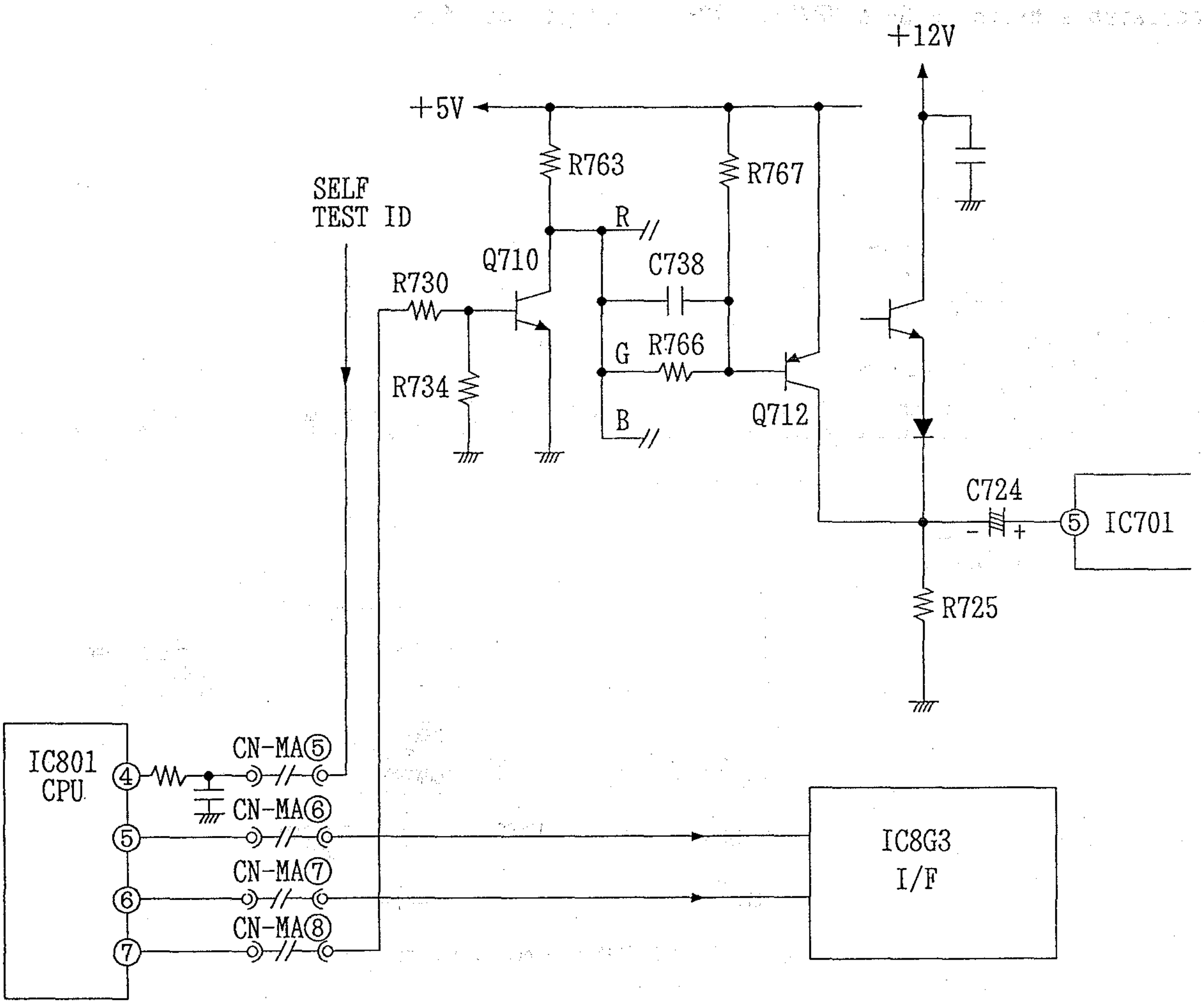
The signal fed to IC8G3 is internally sync separated and waveform shaped.From pin ⑬,V Sync (Posi) is output at 12Vp-p,and from pin ⑭, H Sync (Posi),from pin ⑮,H Sync (Negae),and from pin ⑰,the clamp pulse (posi),are output at 5Vp-p,respectively.Also,when H Sync input signal does not exist at pin ⑱,and when V Sync input signal does not exist at pin ⑲,and also when the polarity is positive,the output is low and when the polarity is negative,the output is high.


IC8G3
M52036SP
Q8G2
DTC114ES
AA1A4M
IC8G2
IC8G1
IC8G0
IC8G1
Clamp Timing
V.Pol
H.Pol
Clamp OUT
Vcc
HD⁻ OUT
HD⁺ OUT
VD⁺ OUT
Digital GND
Vert S/S IN
V. State
State Filter
Greens IN
Green GND
Comp/H IN
Comp/H Det
Vert IN
Vert DET
Vert S/S Adj
R8H9 3.3K
C8H9 1μ
C8K0 330P
C8K1 330P
C8K2 330P
R8K1 5.6K
R8K2 5.6K
R8K0 5.6K
R8H8 1.2K
R8H7 2.7K
C8H8 47μ
C8H7 0.1μ 25V
R8H6 1.2K
C8G9 330P
R8H4 7.5K 1%
R8H5 3.3K
C8H0 4700P
R8H3 100K
C8H1 2.2μ N.P
R8L3 560
C8H2 4.7μ
C8H3 2.2μ
C8H4 4.7μ N.P
C8H5 10μ
C8H6 4.7μ
D8H2 1SS132
D8H3 1SS132
R8K3 15K
R8K4 4.7K
C8G8 4.7μ
D8G8 1SS132
D8G9 1SS132
MB7
MB8
MB9
MB10
MB11
MB9
VF1
VF2
VF3
VF4
TO DEF PWB "VF"
R8H1 3.3K
R8H2 1.5K
R8G9 1.5K
R8H10 680
R8G8 3.3K
D8G4 1SS132
D8H4 1SS132
C8G4 10μ
D8G6 1SS132
D8G0 1SS132
D8G2 1SS132
R8G6 3.3K
D8G5 1SS132
R8G7 3.3K
D8G7 1SS132
R8G4 3.3K
D8G1 1SS132
R8G5 3.3K
D8G3 1SS132
R8G2 5.6K
R8L0 3.3K
C8G3 2.2μ N.P
R8G3 220K
R8L1 3.3K
C8G0 0.1μ
R8G0 5.6K
C8G1 2.2μ N.P
R8G1 220K
C8G2 0.1μ
C795 2.2μ 160V HT
C798 3300P 500V
R7C8 5.6K
C7O3 10P
Q733 2SC2901 K
Q732 2SA1206
2901 K
D7G0 1SS132

(Fig. 1. 3)

1.4 Self Test Circuit

When the D-SUB input is selected from the front panel and there is no video cable attached to either D-SUB connector, CN-MA pin ⑤ and IC801 (CPU) are high. Therefore, IC801 pin ⑤ (H sync), pin ⑥ (V sync) and pin ⑦ (vido) comprise the CPU generated Self Test pattern.

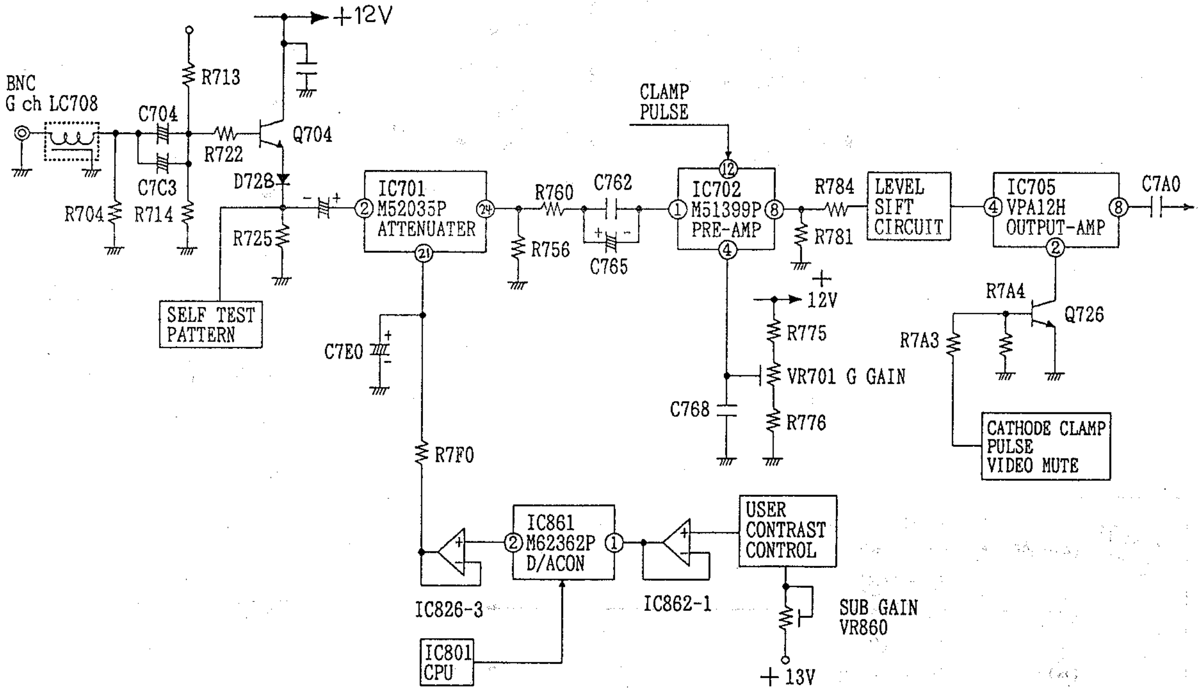

+12V
+5V
R763
R767
SELF TEST ID
R
Q710
C738
R730
G
R766
R734
B
Q712
C724
⑤ IC701
R725
IC801 CPU
④
⑤
⑥
⑦
CN-MA⑤
CN-MA⑥
CN-MA⑦
CN-MA⑧
IC8G3 I/F

(Fig. 1.4)

2. Video Circuit

2.1 Video Signal Amplifier

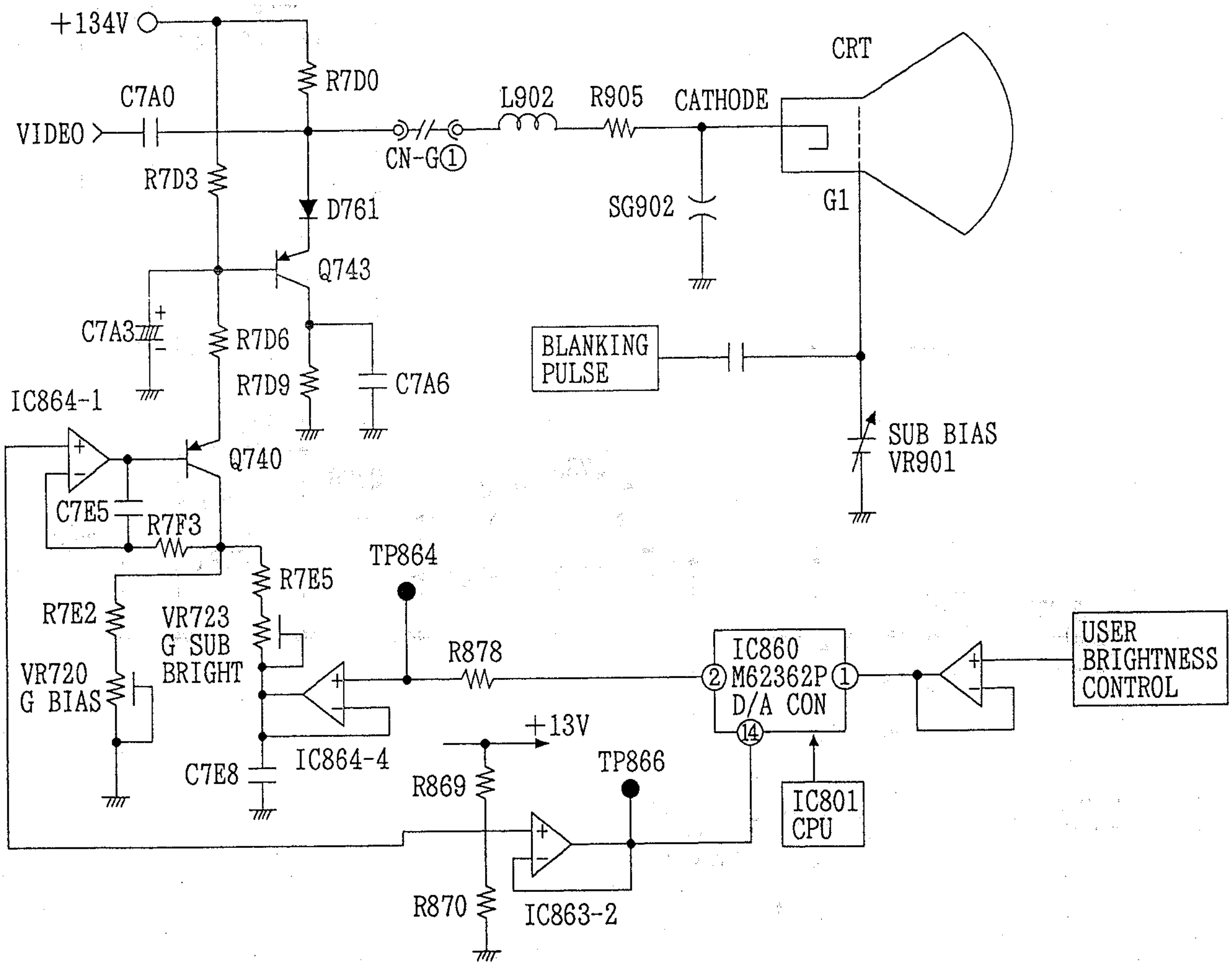
The three video circuits are the same for the each R/G/B color. Therefore only the green videeo circuit will be explained here. The green video signal input is fed to the pin ② of IC701 through the Q704. The video signal is attenuated by IC701, and the attenuation level is controlled by the user CONTRAST CONTROL (VR101). The output signal of IC701 is supplied to IC702. The output signal of IC702 pin ⑧ is supplied to IC705. IC702 is preamplifier, and the gain is adjustable by the G GAIN VR701. IC705 is output amplifier.


+12V
BNC
G ch LC708
R713
C704
R722
Q704
C7C3
D728
R704
R714
R725
SELF TEST PATTERN
IC701
② M52035P ㉔
ATTENUATER
㉑
C7E0
R7F0
R760
C762
R756
C765
CLAMP PULSE
⑫
IC702
① M51399P ⑧
PRE-AMP
④
R784
R781
12V
R775
VR701 G GAIN
C768
R776
LEVEL SIFT CIRCUIT
IC705
④ VPA12H ⑧
OUTPUT-AMP
②
C7A0
R7A4
Q726
R7A3
CATHODE CLAMP PULSE VIDEO MUTE
IC861
② M62362P ①
D/ACON
IC826-3
IC801 CPU
IC862-1
USER CONTRAST CONTROL
SUB GAIN VR860
+13V

(Fig. 2.1) BLOCK DIAGRAM of Video Signal Amplifier

2.2 Brightness and Cut-off circuit

The raster brightness is determined by camping the video output at the cathode with the pulse supplied by IC705.The DC clamping level is determined by using the voltage drop of R7D3 (which is determined by Q740's current).The raster brightness level is determined by the voltage at the output of IC864-4.When the voltage of Q740 emitter is same voltage as the output of IC864-4,the DC clamping level is at cut-off level.

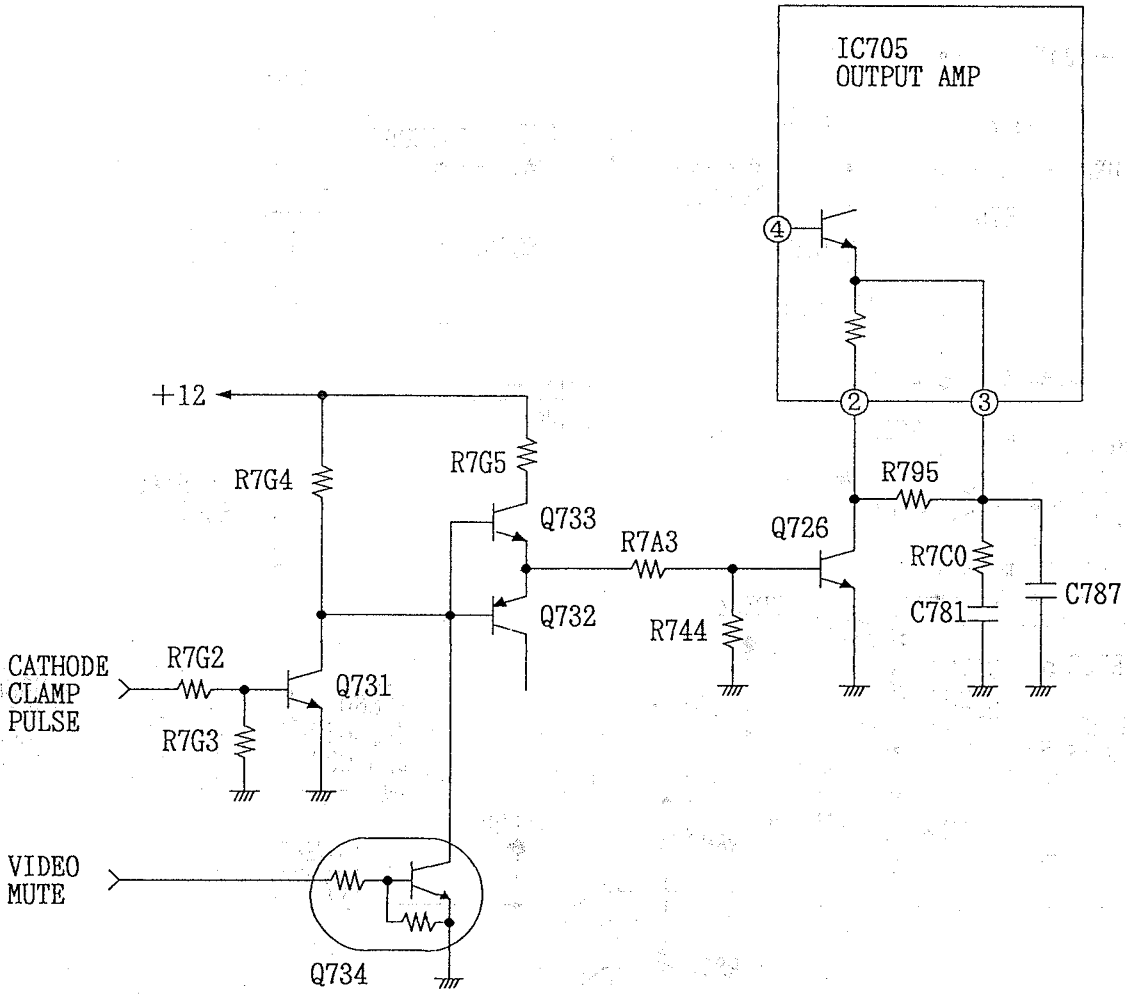


+134V
R7D0
C7A0
VIDEO
CN-G①
L902
R905
CATHODE
CRT
G1
R7D3
D761
SG902
Q743
C7A3
R7D6
R7D9
C7A6
BLANKING
PULSE
IC864-1
Q740
SUB BIAS
VR901
C7E5
R7F3
TP864
R7E5
R7E2
VR723
G SUB
BRIGHT
VR720
G BIAS
R878
IC860
② M62362P ①
D/A CON
⑭
USER
BRIGHTNESS
CONTROL
+13V
C7E8
IC864-4
R869
TP866
IC801
CPU
R870
IC863-2

(Fig. 2.2) Brightness and Cut-off Circuit

2.3 Cathode Clamp Pulse Circuit and Video Mute Circuit

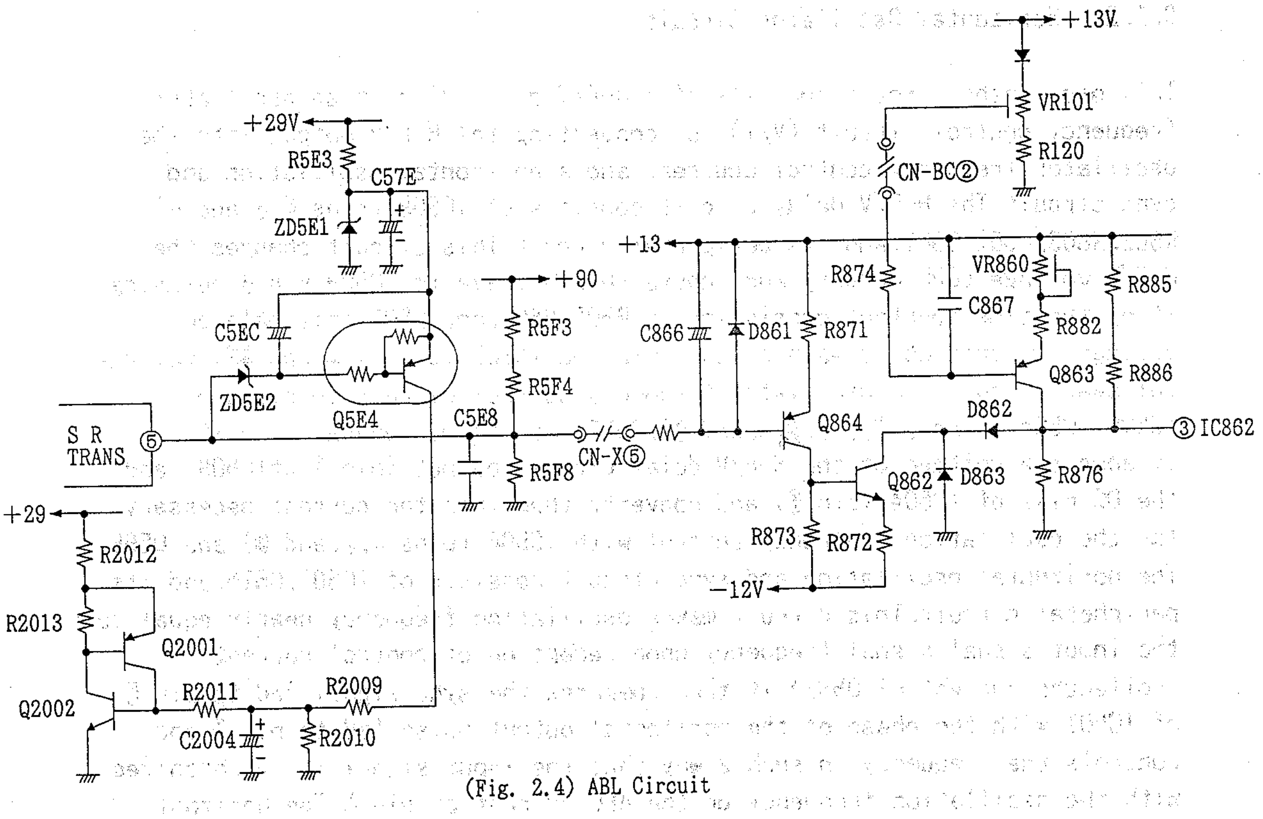
The cathode clamp pulse is applied to the push-pull circuit which is composed of Q732 and Q733 through the Q731. During the clamping period, this pulse turns on the Q726 and the video amplifier is at cut-off.
The video mute signal is generated at the CPU (pin ⑧) when input signal is changed. Q734 is turned on by the video mute signal from the CPU. Then Q726 is turned off and the video amplifier is at cut-off during the time that the video mute signal is generated.


IC705
OUTPUT AMP
④
②
③
+12
R7G4
R7G5
Q733
R7A3
Q726
R795
R7C0
C781
C787
Q732
R744
CATHODE
CLAMP
PULSE
R7G2
Q731
R7G3
VIDEO
MUTE
Q734

(Fig. 2.3) Cathode Clamp Pulse and Video Mute Circuit

2.4 ABL Circuit

The maximum average current flowing through the CRT is controlled to under 500μA by limiting the video Vp-p. The voltage of CN-X pin ⑤ is clamped at 13.6V by D861 when the anode current is 500μA or less. If the anode current exceeds 500μA, the voltage of CN-X pin ⑤ drops to less than 13.6V due to the voltage drop of R5F3 and R5F4. This drives Q864 and Q862 to decrease the collector potential of Q862, and the gain of IC701 is decreased.


+13V
VR101
R120
CN-BC②
+29V
R5E3
C57E
ZD5E1
+13
VR860
R874
R885
+90
C867
C5EC
R5F3
C866
D861
R871
R882
Q863
R886
R5F4
ZD5E2
D862
Q5E4
C5E8
Q864
③IC862
S R
TRANS
⑤
CN-X⑤
R5F8
Q862
D863
R876
+29
R2012
R873
R872
-12V
R2013
Q2001
R2011
R2009
Q2002
C2004
R2010

(Fig. 2.4) ABL Circuit

3. Deflection Circuit

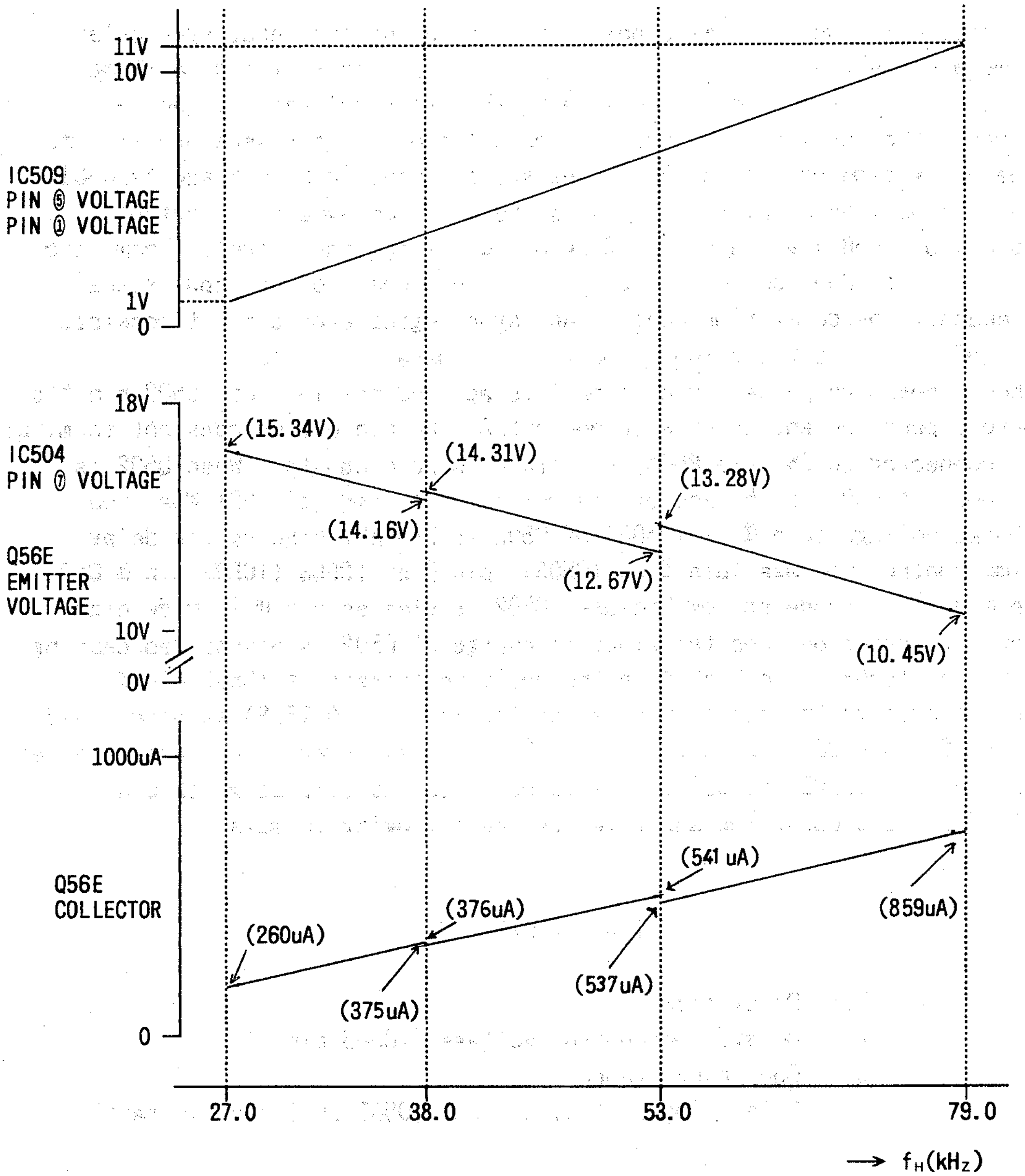
3.1 Horizontal Circuit

3.1.1 +18V Power Supply

This power supply is a series regulator consisting of Q461,Q462,ZD461, and its peripheral circuit. Its output is supplied to the horizontal oscillator circuit and the horizontal image position control circuit, etc.

3.1.2 Horizontal Oscillator Circuit

This oscillator circuit consists of a H-F/V delay circuit,an oscillator frequency control circuit (V/I) for converting the H-F/V output into the oscillator frequency control ccurrent,and a horizontal oscillation and sync circuit.The H-F/V delay circuit consists of IC509 (pins ⑤,⑥,and ⑦), R502,R503,C501,D501,and its peripheral circuit.This circuit changes the H-F/V voltage (CPU output) and inputs this voltage to IC509 pin ⑤ delaying it by the time constant consisting of R502,R503,and C501.This delayed voltage is supplied to each circuit via the IC509 (pins ①,②,and #③) voltage follower circuit.The oscillator frequency control circuit consists of IC505,IC504 (pins ①,②,③,④,⑤,⑥,and ⑦),Q56E,and its peripheral circuits. It adds the voltage of the H-F/V delay circuit output (pin ① ofIC509) and the DC bias of IC504 (pin ⑤) and converts them into the current necessary for the oscillation frequency control with IC504 (pins ①,②,and ③) and Q56E. The horizontal oscillation and sync circuit consists of IC501,C515,and its peripheral circuit.This circuit makes oscillation frequency nearly equal to the input signal signal frequency upon reception of control current (collector current of Q56E).It then compares the sync signal fed to pin ① of IC501 with the phase of the horizontal output pulse fed to pin ④ and controls the frequency in such a way that the input signal is synchronized with the oscillation frequency on the AFC current of pin ⑦.The horizontal output pulse at pin ⑫ of IC501 is supply to the horizontal drive circuit, etc.For information on the input signal frequency VS each pin voltage and current of each section,refer to Fig. 3.1.2.


11V
10V
IC509
PIN ⑤ VOLTAGE
PIN ① VOLTAGE
1V
0
18V
IC504
PIN ⑦ VOLTAGE
Q56E
EMITTER
VOLTAGE
10V
0V
(15.34V)
(14.31V)
(14.16V)
(13.28V)
(12.67V)
(10.45V)
1000uA
Q56E
COLLECTOR
0
(260uA)
(375uA)
(376uA)
(537uA)
(541 uA)
(859uA)
27.0
38.0
53.0
79.0
→ f_H(kHz)

(Fig.3. 1. 2)

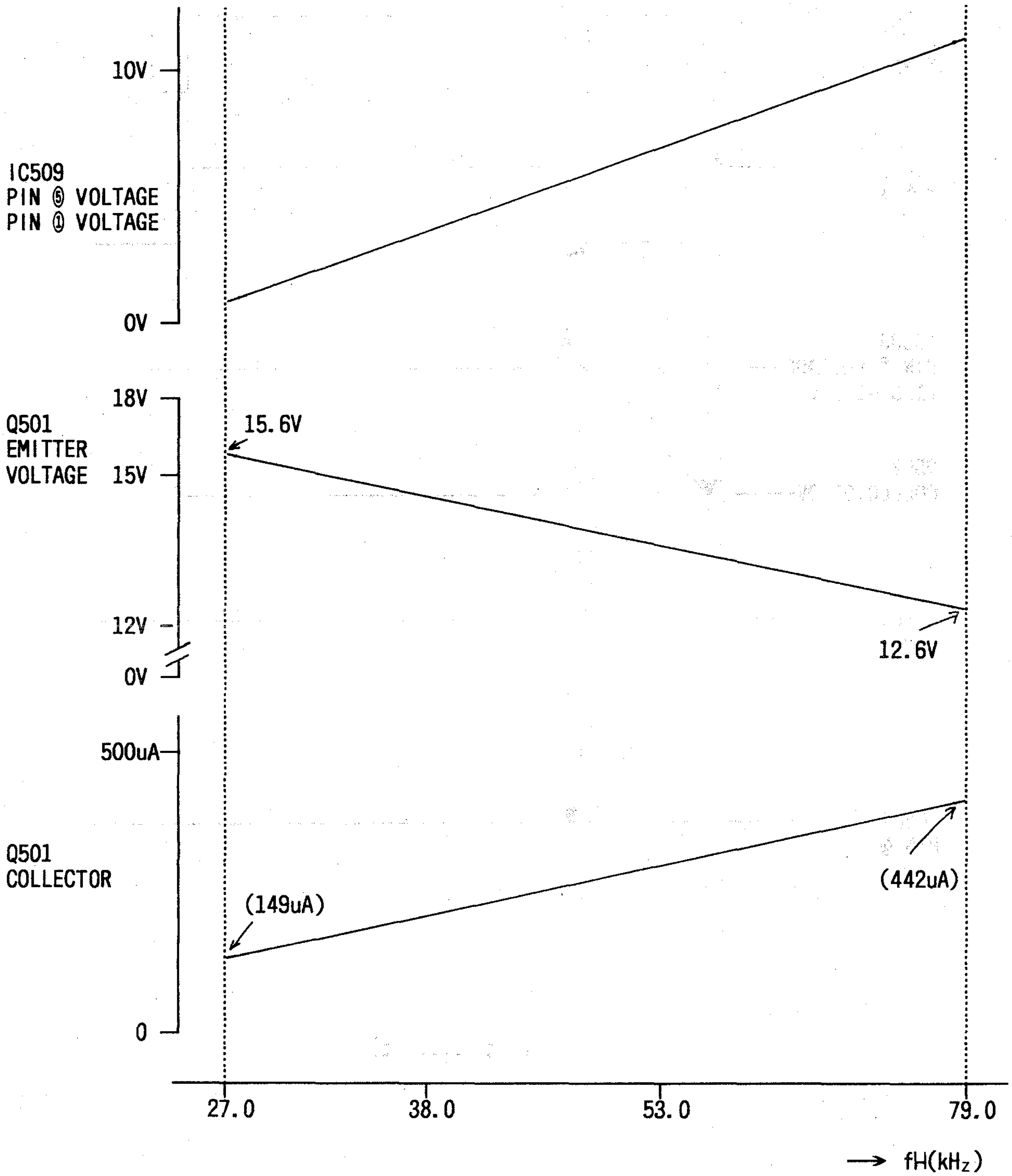
3.1.3 Horizontal Image Position Control Circuit

This circuit controls image position by delaying the input sync delay time and the quasi AFC comparison signal. It consists of a delay time control circuit for converting the H-F/V output voltage into delay time control current, a delay time control and sync regenerator circuit. The delay time control circuit consists of IC504 (pins ⑫, ⑬, and ⑭), Q501, and its peripheral circuits. It adds the H-F/V delay circuit output (pin ① of IC509) voltage and IC504 pin ⑫ voltage and converts them into the current (Q501 collector current) proportional to the input signal frequency. The delay time control and sync regenerator circuit consists of Q502, C502, IC502, and IC503, and its peripheral circuits.
When a negative pulse (sync signal) is applied to pin ① of IC502, pin ④'s output goes low, and Q502 is turned off. As the pin ⑮ time constant terminal is connected to GND via R50M, this state is held constant. When Q502 is turned off, C502 is charged by the collector current of Q501. When the charge voltage (pin ③ of IC503) of C502 is brought high by the delay time control voltage (pin ② of IC503), pin ⑦ of IC503 (IC502 pin ③ CLR terminal) is rendered low. Because IC502 is cleared, pin ④ is made high, Q502 is turned on, and the electric charge of C502 is discharged, causing pin ⑦ of IC503 to go high. With the positive trigger of IC502 pin ⑩ (pin ④ output), the negative pulse of the width (≒ 0.15uS) as determined by R520 and C506 is output from pin ⑫ as a quasi sync signal and supplied to pin ① of IC501. The delay time is equal to the time at which pin ④ of IC502 is brought low and given by the following formula.

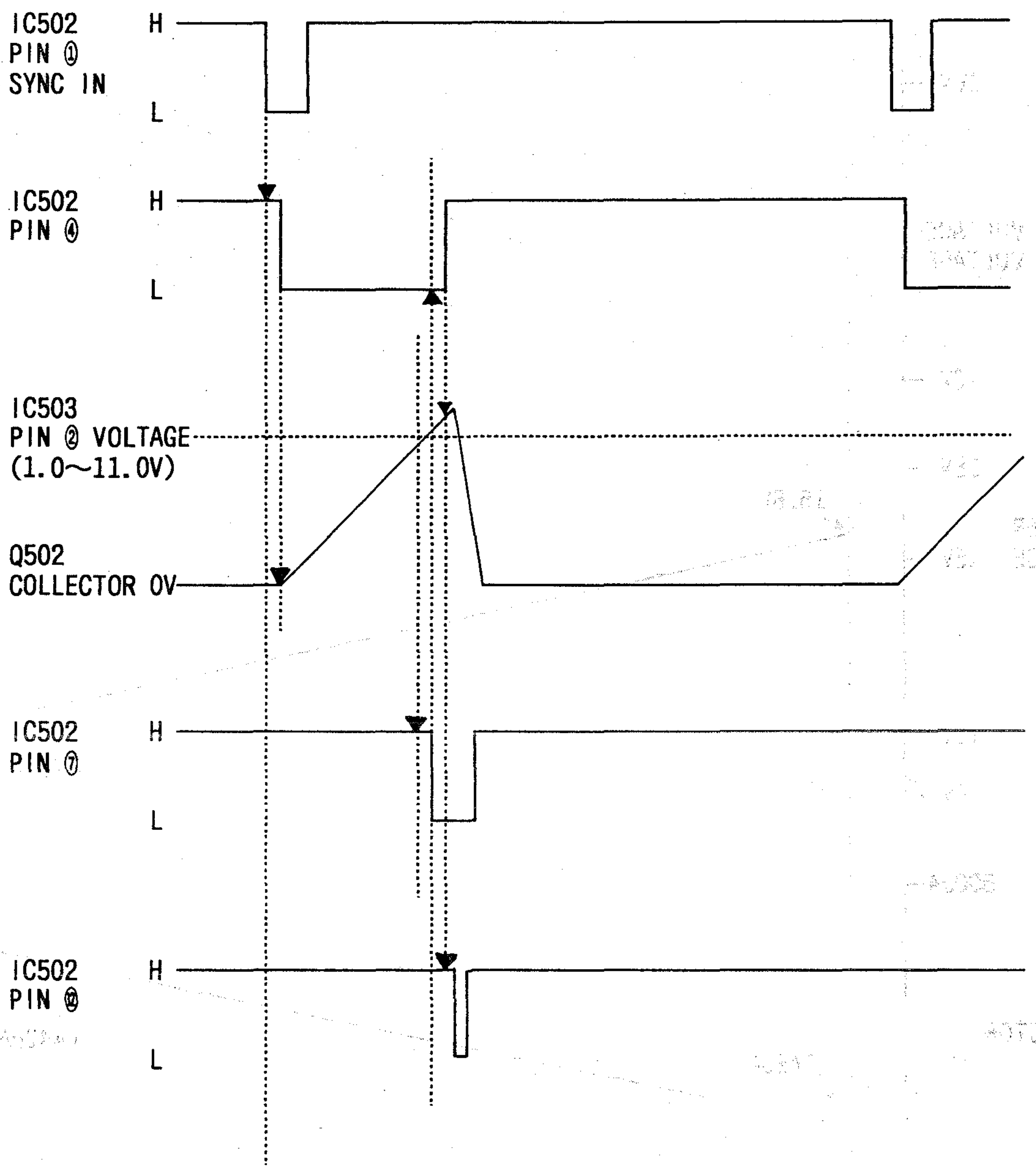
$$T = V * C/I$$

T: Delay time
V: Delay time control voltage (IC503 pin ②)
C: C502 capacitance
I: Delay time control current (Q501 collector current)

The delay time control current I is proportional to the input signal frequency. The delay time T is proportional to the horizontal cycle. Therefore, the control range on the screen is held constant regardless of input signal frequency. For information about the input signal frequency VS each section's terminal voltage and current, refer to Fig. 3.1.3.a.
For the operation waveform of each section, refer to Fig. 3.1.3.b.


10V
IC509
PIN ⑥ VOLTAGE
PIN ① VOLTAGE
0V
18V
Q501
EMITTER
VOLTAGE
15V
15.6V
12V
0V
12.6V
500uA
Q501
COLLECTOR
(149uA)
(442uA)
0
27.0
38.0
53.0
79.0
→ fH(kHz)

(Fig. 3.1.3.a)


IC502
PIN ①
SYNC IN
H
L
IC502
PIN ④
H
L
IC503
PIN ② VOLTAGE
(1.0~11.0V)
Q502
COLLECTOR 0V
IC502
PIN ⑦
H
L
IC502
PIN ⑫
H
L

(Fig. 3.1.3.b)

3.1.4 Image Distortion Correction Circuit

This circuit adds the vertical cycle sawtooth,the side pin correction parabolic wave and the CPU generated image distortion correction voltage to the delay time control voltage.The sawtooth wave and parabolic wave adder circuit consists of IC506 and its peripheral circuits.It adds the sawtootn wave and parabolic wave and supplied via R5Y5 and R5X5 with IC506 and its peripheral circuit to produce an image distortion correction waveform.It then attenuates the waveform to a peak-to-peak wave value suited for addition of the waveform to the delay time control voltage. The circuit for adding the image distortion correction wave to the delay time control voltage consists of IC504 (pins ⑧,⑨,and ⑩) and its peripheral circuit.The image distortion correction waveform (IC504 pin ① output) is supplied to IC504 (pin ⑩) via C5X3 and added to the delay time control voltage from the microcomputer supplied via R5Y1.This added voltage is supplied to the horizontal image position control circuit (IC503 pin ②).

3.1.5 Horizontal Comparator Switching Circuit

This comparator consists of Q50A,Q51A,Q52A,Q53A,Q54A,Q55A,Q58A,IC510,IC511, and peripheral circuits.The description of the comparator for fH = 30kHz will be given below as a typical comparator used.

High frequency input signal change description:

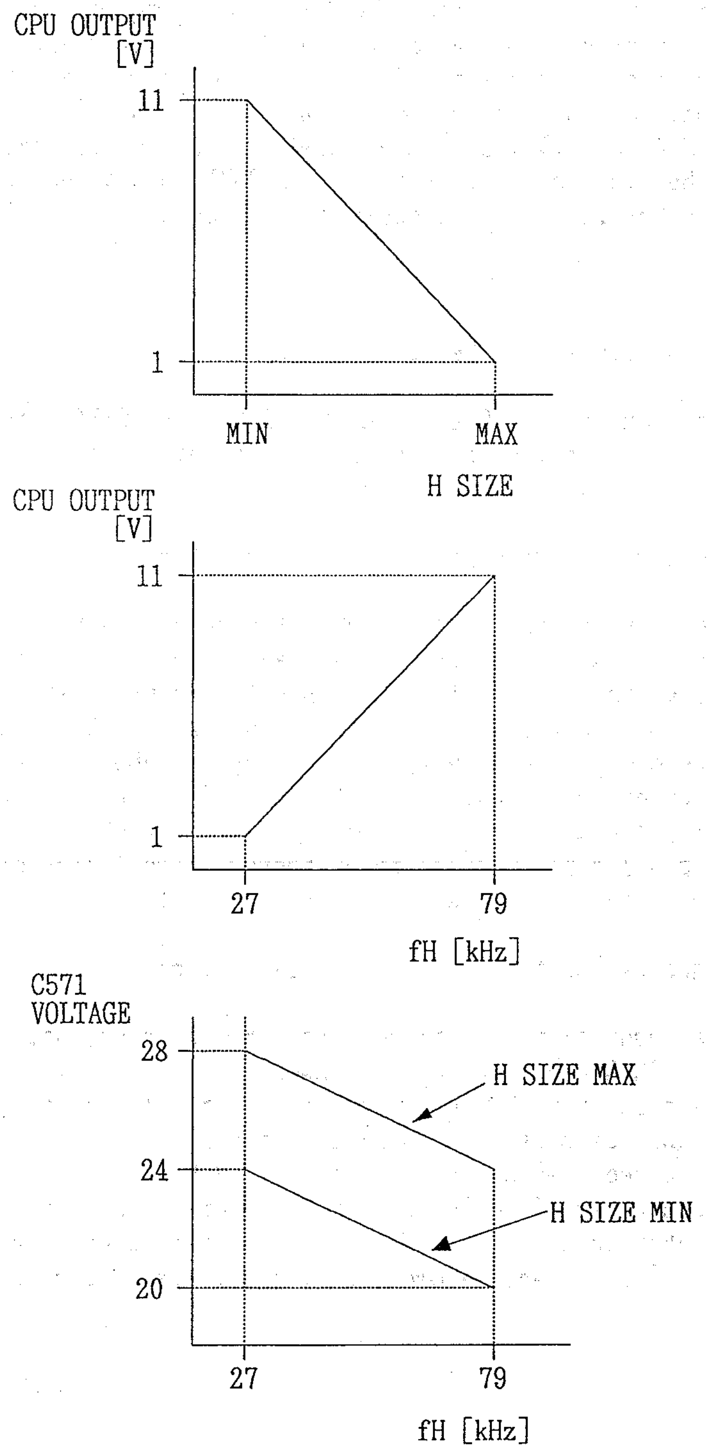
When the input signal is fH < 30kHz,the base of Q58A is low and therefore it is off.Because the voltage at pin ⑦ of IC510 is higher than the voltage at pin ⑥ (H-F/V),pin ① remains constant at about 16V.When the input signal fH > 30kHz,the base of Q58A is made high and therefore turned on.Now,pin ⑦ voltage is about 0.3V lower than the switching level (equivalent to fH = 30kHz).Pin ⑥'s voltage is gradually increased by the H-F/V delay circuit.When pin ⑥'s voltage exceeds pin ⑦'s,pin ① drops to 0V,thereby stabilizing pin ⑦'s voltage. Now,this voltage is placed in the stable state.

Low frequency input signal change description:

When the input signal is fH > 30kHz,Q58A is on because its base is high.The IC510 pin ⑦ voltage is lower than the pin ⑥ (H-F/V) voltage, pin ① becomes about 0V and therefore in the stable state.When the input signal becomes fH < 30kHz,the base of Q58A is forced low and Q58A is turned on.Pin ⑦'s voltage is 0.3V higher than the switching level (equivalent fH = 30kHz).Pin ⑥'s voltage is gradually reduced by the H-F/V delay circuit.When pin ⑥'s voltage drops below that of pin ⑦,pin ①'s voltage becomes 16V,thereby stabilizing pin ⑦'s voltage.

3.1.6 Horizontzl Drive Circuit

The horizontal pre-drive pulse at IC501 pin ⑫,and Q574 is turned on and off.Then it is amplified by T571 to turn on Q581 (horizontal output transistor).This horizontal drive is set so that the voltage of C571 is controlled to the optimum value by the horizontal size and the horizontal frequency.



(Fig. 3.1.6)

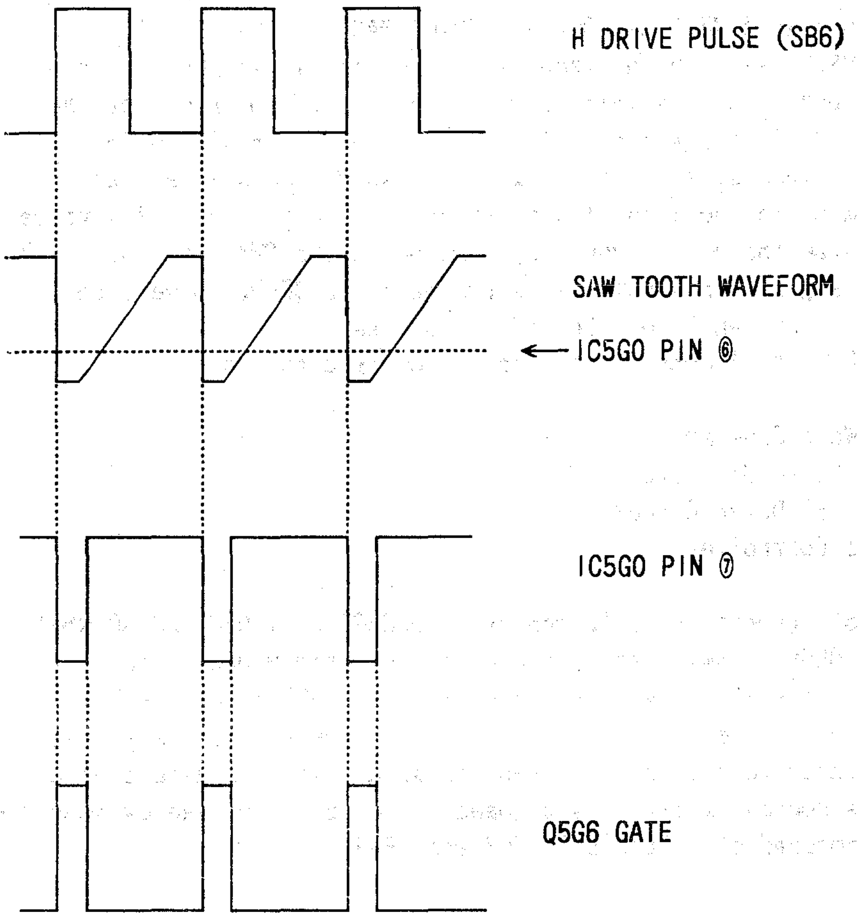
3.1.7 Horizontal Size Control Circuit

The horizontal video image is manipulated by the user control (set using 1280 × 1024,78.8kHz/70Hz and SW109 MAX). It is controlled to 316mm by VR590. Also, the horizontal video size is designed to scan the front bezel fully (316mm) at all the preset timing, except MAC Ⅱ When the H SIZE of user control is set to the MAX position. The horizontal video size is stored with the specified size at each preset timing. The horizontal deflection voltage controls 175V to be supplied from the power supply unit based on the PWM with the H SIZE and H F/V signals. This voltage is subjected to DC-DC conversion, supplied to T581, and then stepped up for use.
The H SIZE control consists of the following circuits:

Sawtooth Wave Generator
Switching Pulse Generator
Switching FET Drive Circuit
Duty Cycle Controller

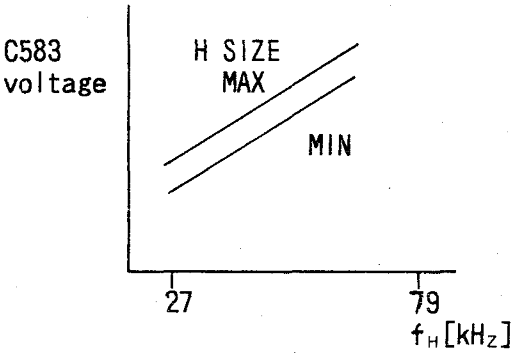
The sawtooth generator is formed by Q5G0, C5G2, Q5G1, Q5G2, ZD5G0, R5G1, and ZD5G1. Q5G0 is switched by the differentiated H OSC pulse. Therefore, the sawtooth wave synchronized to H OSC frequency. The square wave is generated at IC5G0 pin ⑦, is inverted by transformer T5G0, and input to gate of FET Q5G6. The square wave is generated at FET Q5G6's source $175V_{P-P}$ is changed to DC level voltage by smoothing circuit composed of: L5G1, C5H9, L5G2, and C583.

This DC voltage is used as a power source.


H DRIVE PULSE (SB6)
SAW TOOTH WAVEFORM
IC5G0 PIN ⑥
IC5G0 PIN ⑦
Q5G6 GATE

(Fig.3.1.7.a)

The threshold voltage of pin ⑥ of IC5G0 which determines the ON-OFF duty of Q5G6 is controlled by the DC voltage of SB3 (H SIZE) and SB4 (H-F/V).



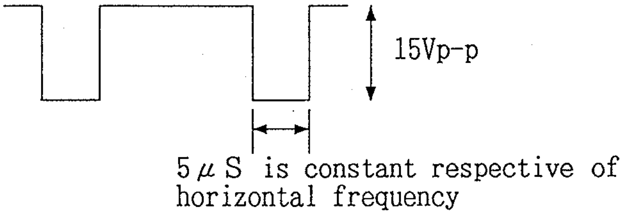
(Fig.3.1.7.b)

The horizontal video size changes up to 85% when the maximum size is made 100%.

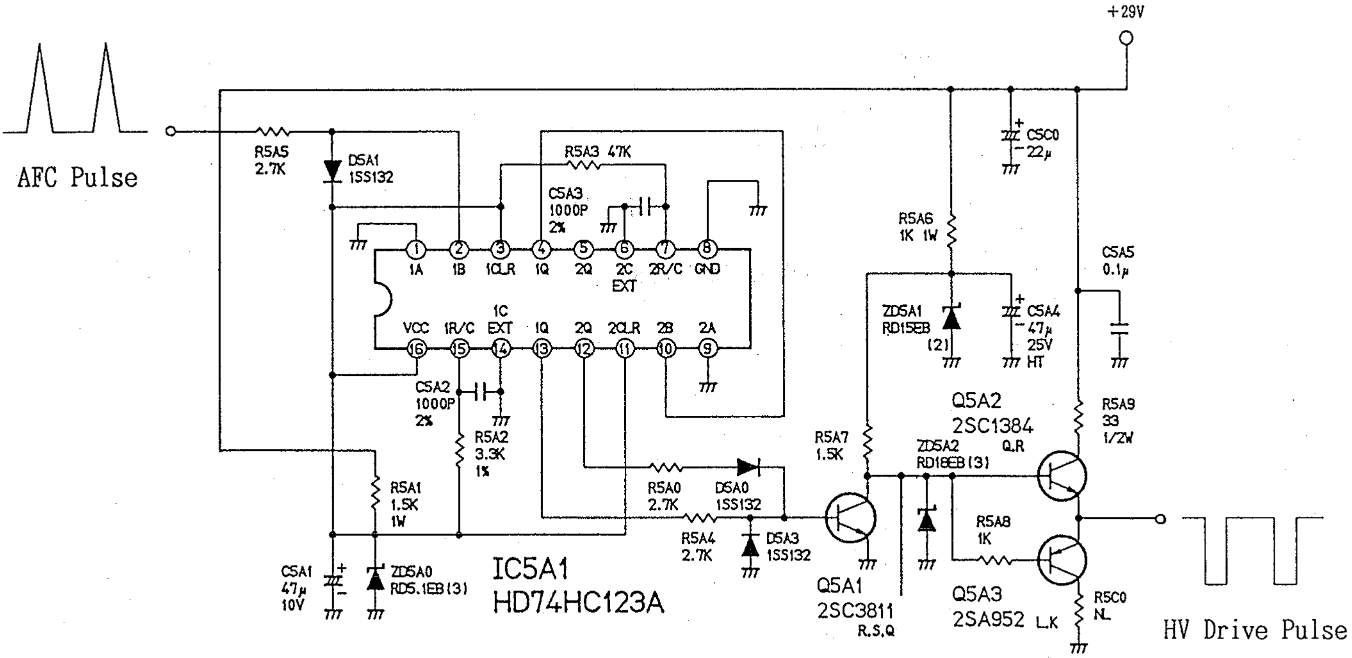
3.2 High Voltage Circuit

3.2.1 High Voltage Drive Circuit

The high voltage drive circuit consists of IC5A1 (monostable multivibrator), Q5A1, Q5A2, and Q5A3. This circuit receives an AFC pulse from the horizontal output transformer and generates a high voltage drive pulse which ensures the OFF period such as shown below by using the monostable multivibrator.
The high voltage drive pulse is fed to the gate of Q5A4 and Q5A5 FET through the push-pull stage of Q5A2 and Q5A3.


15Vp-p
5μS is constant respective of
horizontal frequency

(Fig. 3.2.1.a)


+29V
AFC Pulse
R5A5
2.7K
D5A1
1SS132
R5A3 47K
C5A3
1000P
2%
1A
1B
1CLR
1Q
2Q
2C
EXT
2R/C
GND
VCC
1R/C
1C
EXT
1Q
2Q
2CLR
2B
2A
C5A2
1000P
2%
R5A2
3.3K
1%
R5A1
1.5K
1W
R5A0
2.7K
D5A0
1SS132
R5A4
2.7K
D5A3
1SS132
C5A1
47μ
10V
ZD5A0
RD5.1EB(3)
IC5A1
HD74HC123A
C5C0
22μ
R5A6
1K 1W
C5A5
0.1μ
ZD5A1
RD15EB
(2)
C5A4
47μ
25V
HT
Q5A2
2SC1384
Q.R
R5A7
1.5K
ZD5A2
RD18EB(3)
R5A9
33
1/2W
R5A8
1K
Q5A1
2SC3811
R.S.Q
Q5A3
2SA952 L.K
R5C0
NL
HV Drive Pulse

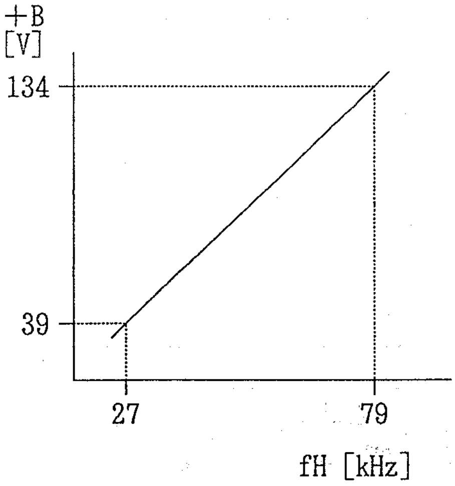
(Fig. 3. 2. 1)

3.2.2 High Voltage Output Circuit

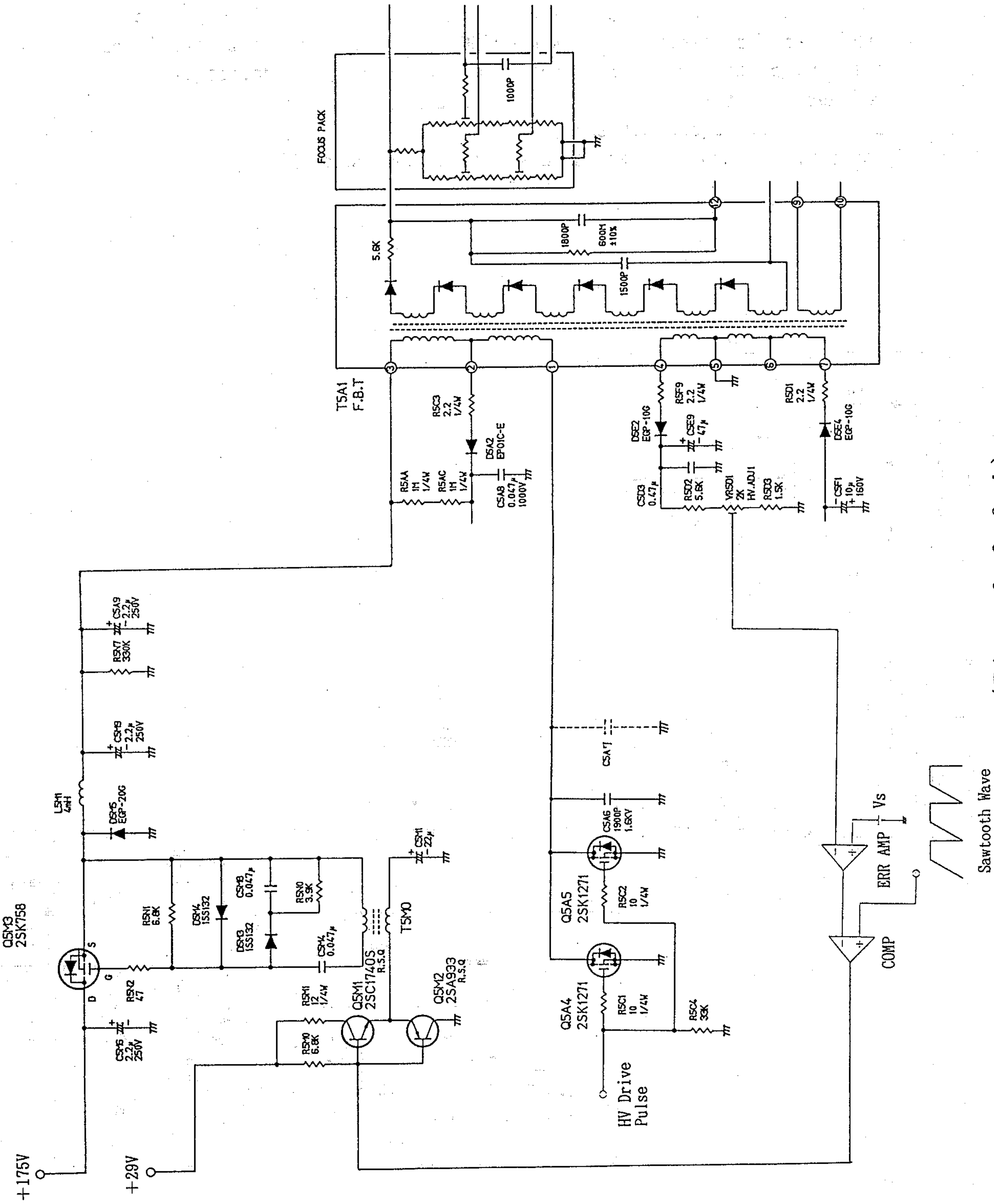
High voltage regulation is obtained through the use of two circuit. The first circuit controls T5A1's (FBT) input voltage (+B) for the horizontal frequency and regulates high voltage.The second circuits controls the SR Transformer's output voltage to the CRT anode current and regulates the high voltage.

3.2.3 +B Control Circuit

This circuit detects high voltage based on the tertiary winding of T5A1 (FBT) and controls the DC/DC converter (Q5M3, Q5M5, L5M1, and C5M8) for keeping the high voltage remains constant despite of a horizontal frequency change. The control amount (high voltage) can be varied by VR5D1.Relations between the horizontal frequency and the +B are as indicated below:



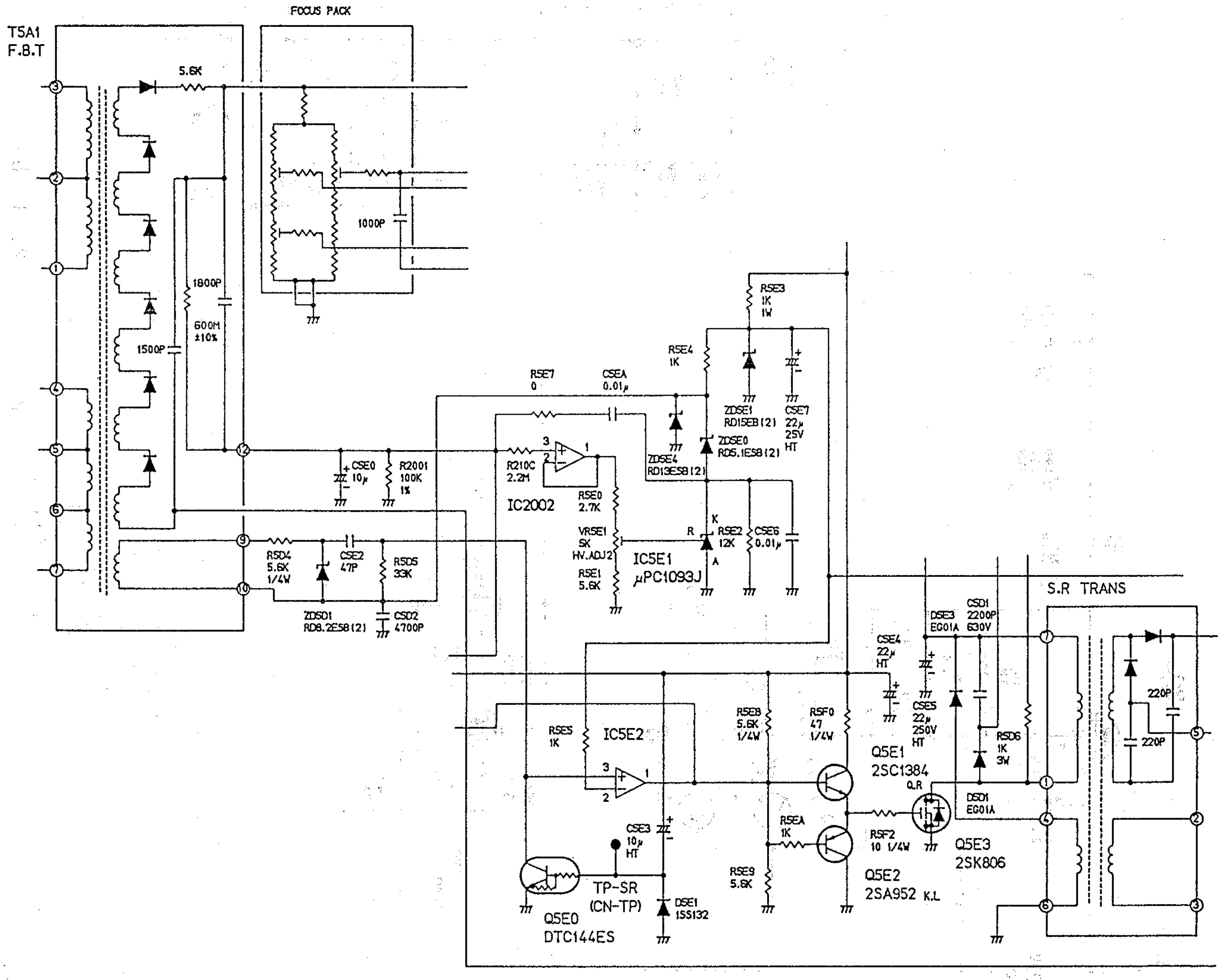
(Fig. 3.2.3.a)


FOCUS PACK
1000P
5.6K
1800P
600M ±10%
1500P
T5A1 F.B.T
R5C3 2.2 1/4W
D5A2 EP01C-E
R5AA 1M 1/4W
R5AC 1M 1/4W
C5A8 0.047μ 1000V
D5E2 EGP-10G
R5F9 2.2 1/4W
C5E9 47μ
C5D3 0.47μ
R5D2 5.6K
VR5D1 2K HV.ADJ1
R5D3 1.5K
R5D1 2.2 1/4W
D5E4 EGP-10G
C5F1 10μ 160V
C5A9 2.2μ 250V
R5K7 330K
C5M9 2.2μ 250V
L5M1 4mH
D5M5 EGP-20G
C5M1 22μ
C5A7
C5A6 1900P 1.6KV
Q5A5 2SK1271
R5C2 10 1/4W
Q5A4 2SK1271
R5C1 10 1/4W
R5C4 33K
HV Drive Pulse
Q5M3 2SK758
S
G
D
R5N1 6.8K
D5M4 1SS132
C5M8 0.047μ
R5N0 3.3K
D5M3 1SS132
C5M4 0.047μ
T5M0
R5N2 47
C5M5 2.2μ 250V
R5M1 12 1/4W
R5M0 6.8K
Q5M1 2SC1740S R.S.Q
Q5M2 2SA933 R.S.Q
+175V
+29V
ERR AMP
Vs
COMP
Sawtooth Wave

(Fig. 3. 2. 3. b)

3.2.4 S-R Control Circuit

This circuit detects high voltage with the bleeder resistor of T5A1 (FBT) and the detection resistor R2001 and controls the width of the pulse which drives the S-R transformer based on this detection voltage, and the high voltage remains constant in spite of a change in CRT anode current.
The control amount (high voltage) can be varied by VR5E1.

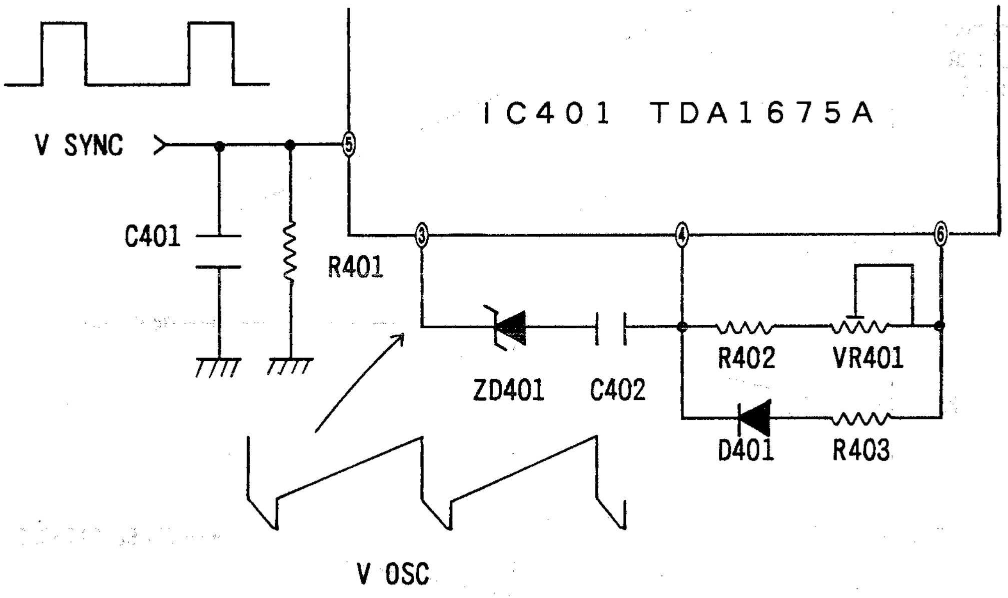

T5A1
F.B.T
FOCUS PACK
5.6K
1000P
1800P
600M
±10%
1500P
R5E3
1K
1W
R5E4
1K
R5E7
0
C5EA
0.01μ
ZD5E1
RD15EB(2)
C5E7
22μ
25V
HT
ZD5E0
RD5.1ES8(2)
ZD5E4
RD13ES8(2)
C5E0
10μ
R2001
100K
1%
R210C
2.2M
IC2002
R5E0
2.7K
VR5E1
5K
HV.ADJ2
R5E1
5.6K
IC5E1
μPC1093J
R
K
A
R5E2
12K
C5E6
0.01μ
R5D4
5.6K
1/4W
C5E2
47P
R5D5
33K
ZD5D1
RD8.2ES8(2)
C5D2
4700P
S.R TRANS
C5D1
2200P
630V
D5E3
EG01A
C5E4
22μ
HT
C5E5
22μ
250V
HT
R5E8
5.6K
1/4W
R5F0
47
1/4W
R5E5
1K
IC5E2
Q5E1
2SC1384
Q.R
R5D6
1K
3W
D5D1
EG01A
C5E3
10μ
HT
R5EA
1K
R5F2
10 1/4W
Q5E3
2SK806
R5E9
5.6K
TP-SR
(CN-TP)
D5E1
1SS132
Q5E0
DTC144ES
Q5E2
2SA952 K.L
220P
220P
1
2
3
4
5
6
7
9
10
12

(Fig. 3. 2. 4)

3.3 Vertical Circuit

3.3.1 Vertical Oscillator Circuit

A positive sync pulse input to IC401 pin ⑤ results in a sawtooth wave being generated at pin ③. When vertical deflection frequency fv is 40 - 90Hz, sync is automatic. When the sync signal is not present, oscillation is made at the frequency fo determined by C402, R402, R403, and VR401 to make fo = 40Hz with VR401.

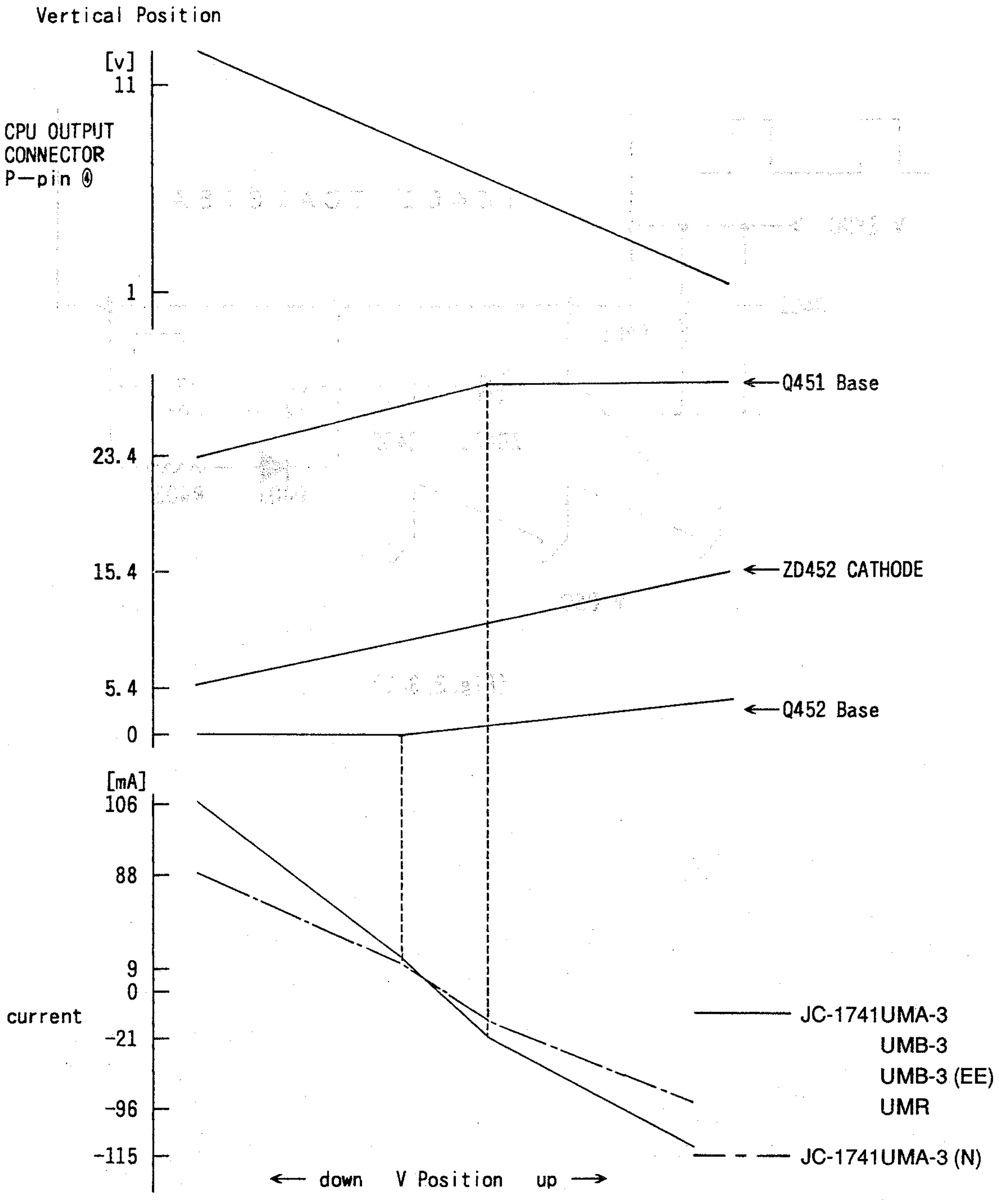


IC401 TDA1675A
V SYNC
⑤
③
④
⑥
C401
R401
ZD401
C402
R402
VR401
D401
R403
V OSC

(Fig. 3.3.1)

3.3.2 Vertical Position Circuit

Explanation: the CPU PWB outputs the DC V Position signal as shown in Fig.3.3.2.The CPU generates the DC signal and the DC reference signal (= 8.2V) at IC402 pin ⑫.This voltage is amplified by the differrential amplifier comprised of the OP-AMP (IC402),R452,and R453. Therefore,each DC voltages as shown in Fig. 3.3.2.As a result,the value of DC current through the vertical deflection yoke changes as shown in Fig. 3.3.2 as the vertical position moves up or down.



(Fig. 3.3.2)

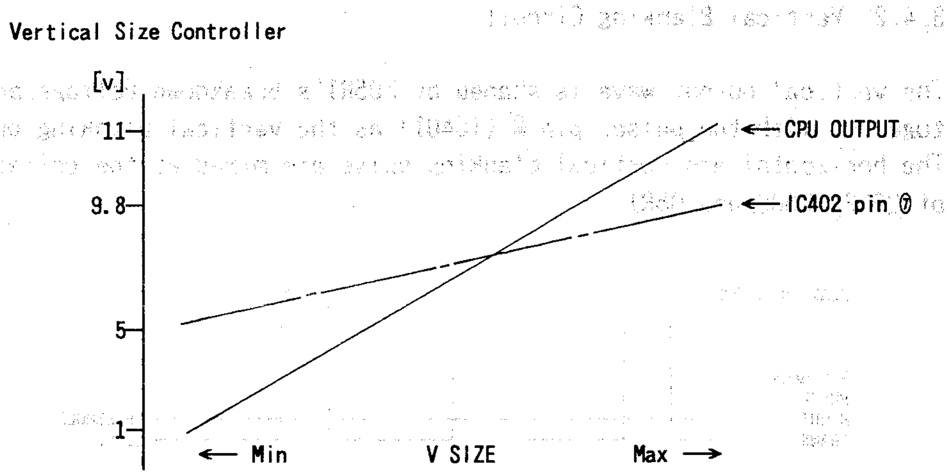
3.3.3 Vertical Size Circuit

The vertical picture size is adjusted to 237mm using VR421 while the input signal is the VGA350 line mode V SIZE control is maximum. The vertical size is adjusted for pre-set timing, and it is written to E^2 PROM. Vertical size control circuit explanation.

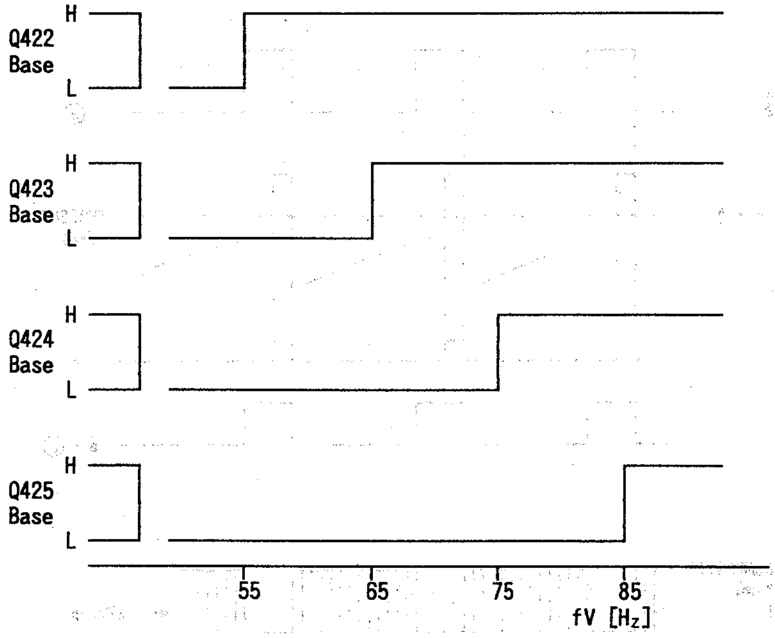
The DC signal to control V SIZE is output from CPU PWB, and the voltage at IC402 pin ⑦ changes in proportion to V SIZE as shown in Fig. 3.3.3.a.

The vertical size logic table is shown in Fig. 3.3.3.b.

Q422, Q423, Q424 and Q425 are turned ON and OFF depending upon the vertical frequency input. This assures the same size raster regardless of the vertical frequency.



(Fig. 3.3.3.a)



(Fig. 3.3.3.b)

3.4 Blanking Circuit

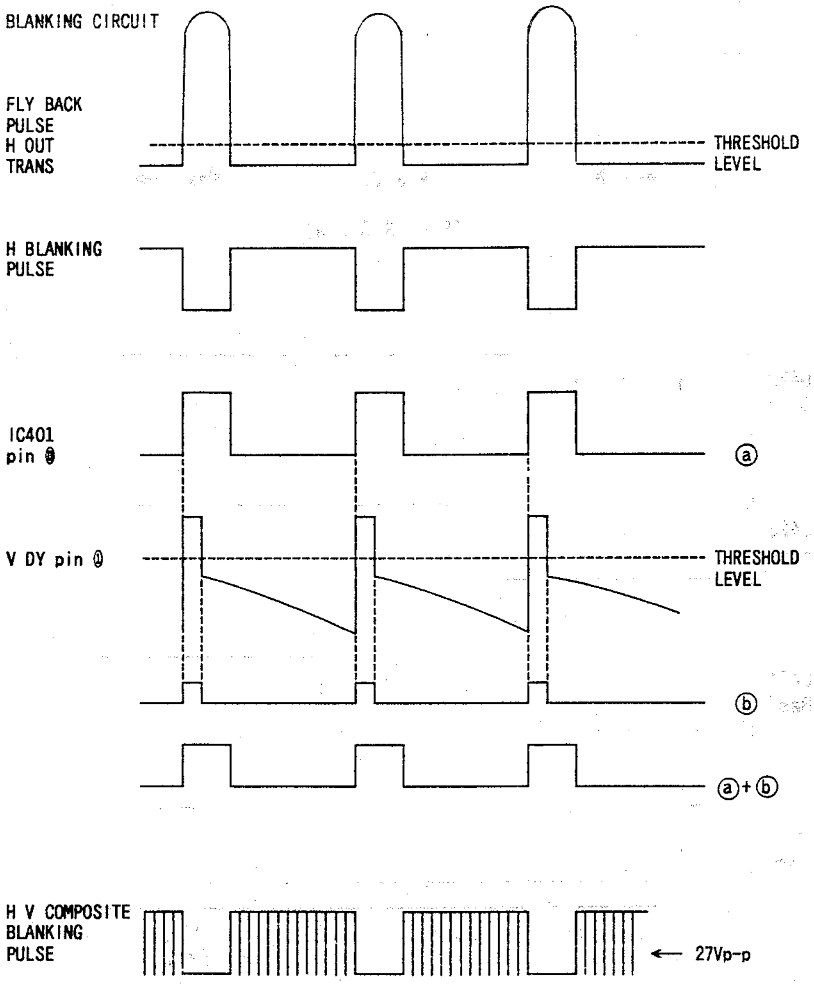
The blanking pulse is generated at "DEF PWB", and input to "CRT PWB". Then it is clamped by DC bottom clamp circuit, and input to G1 of CRT. Therefore, the voltage of G1 is changed by blanking pulse as shown in Fig.3.4, and retrace line is blanked at lower voltage G1. Blanking pulse generator circuit explanation.

3.4.1 Horizontal Blanking Circuit

The fly back pulse of the H out trans is input to base of Q5R2 through R5R4,D5R1,and C5R1 turning it off and on. Then the horizontal blanking pulse is generated collector of Q5R2.

3.4.2 Vertical Blanking Circuit

The vertical output wave is shaped by ZD5R1's breakdown voltage, and together with the pulse, pin ⑬ (IC401) as the vertical blanking pulse. The horizontal and vertical blanking pulse are mixed at the collector of Q5R2, Q5R0 and Q5R1.


BLANKING CIRCUIT
FLY BACK PULSE H OUT TRANS
THRESHOLD LEVEL
H BLANKING PULSE
IC401 pin ⑬
ⓐ
V DY pin ①
THRESHOLD LEVEL
ⓑ
ⓐ+ⓑ
H V COMPOSITE BLANKING PULSE
27Vp-p

(Fig. 3.4)

3.5 Picture Distortion Correction Circuit (SDP PWB 339A)

3.5.1 Side Pincushion Circuit

This model has the following two types of side pincushion correction.

(1) Horizontal Deflection Control Voltage

The side pincushion distortion is corrected by controlling the horizontal deflection circuit power supply voltage.

The control voltage waveform is supplied to the error amplifier IC5G1 pin ⑥ of the H SIZE controller through R5H5 and C5H1.
The control voltage waveform circuit consists of IC5S1 to S5 and their ambient circuit.

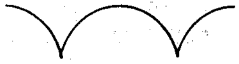
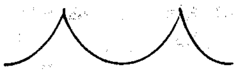
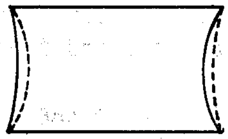
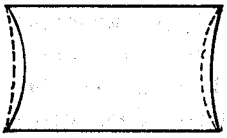
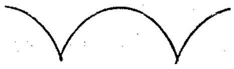
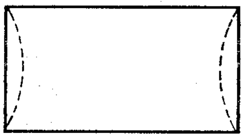
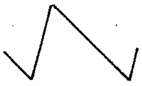
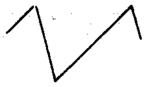
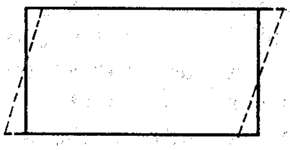
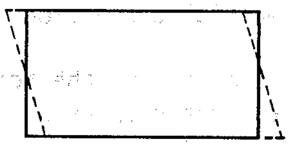
The voltage waveform between the both sides of the vertical S-correction capacitor C410 are supplied to the differential amplifier IC5S2 pin ② and ③. As the result, the vertical palabolic waveform is supplied from IC5S2 pin ① to IC5S1 pin ①. IC5S1 is the vertical frequency correction multiplier. The DC voltage of the V-F/V converter of CPU is supplied to IC5S1 pin ④ through IC5S2, Q5S1, and connector SA-6. Approx. 5Vp-p V-palabolic waveform, which is corrected vertical frequency tracking, is output at IC5S1 pin ⑧, and is supplied to IC5S5 pin ⑤ through IC5S3 pin ⑦.

IC5S5 is the horizontal width and CPU multiplier.
For horizontal width correction, the DC voltage of the horizontal deflection circuit power supply is supplied to IC5S4 pin ⑤ through R5W9, R5X0, C5X1 and connector SA-8. User control side pincushion explanation. The CPU controlled DC voltage is supplied to IC5S5 pin ⑤ and ⑧ through IC5S4 and connector SA-7. The control range is approx. 1V DC (4% barrel) to 11V DC (1.5% pin) at connector SA-7. Normally, CPU output is 6V DC at SA-7 without CPU control. Leave user control at factory preset for optimum pincushion performance preset. At that case the user control range may be shift little bit (approx. 2% barrel to 1% pin). By CPU control, user can adjust the side pincushion each range devided by horizontal frequency 33k, 43k, 50k, 62k, 71kHz.

VR5S2 (SIDE PIN) is a variable resister to adjust the side pincushion for dispersion correction.

(2) Control of the horizontal sync. phase for correction of right and left sides dispersion.

The deflection yoke has a distortion dispersion of right and left pincushion. To reduce this dispersion, the parabolic voltage is supplied to horizontal phase shifter circuit. The balance of the right and left distortion is adjusted by using the VR5U1. There is no correction at the center position of VR5U1 adjustment, and the palabolic waveform voltage level and polarity is changed by adjusting clockwise or counterclockwise.

CORRECTION	VOLTAGE WAVEFORM	PICTURE
Balance of right and left side pincushion	at connecter SA pin ② clockwise  counterclockwise 	 
Side pincushion	at IC5S4 pin ⑭ 	
Parallel	at connecter pin ① clockwise  counterclockwise 	 

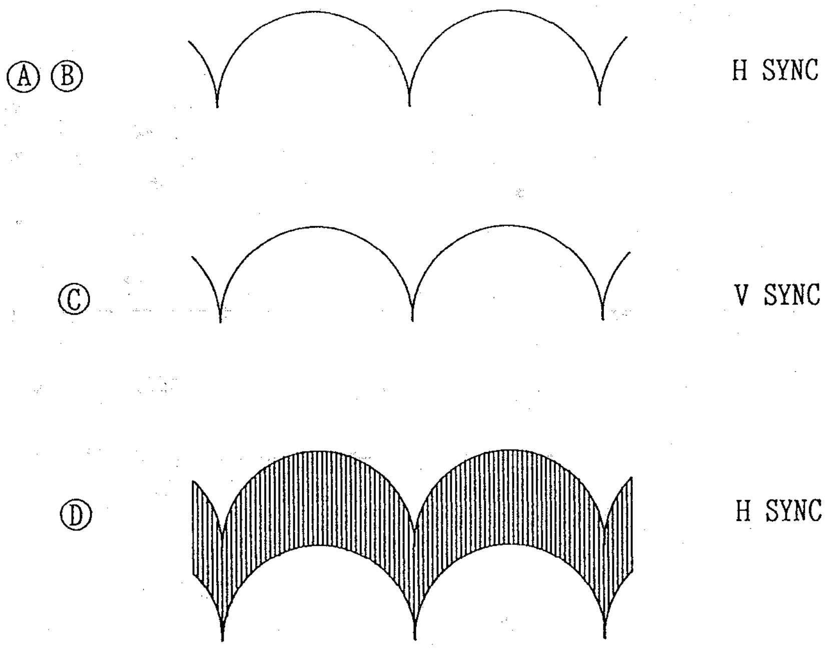
(Fig. 3. 5)

3.5.2 Parallel Distortion Correction Circuit

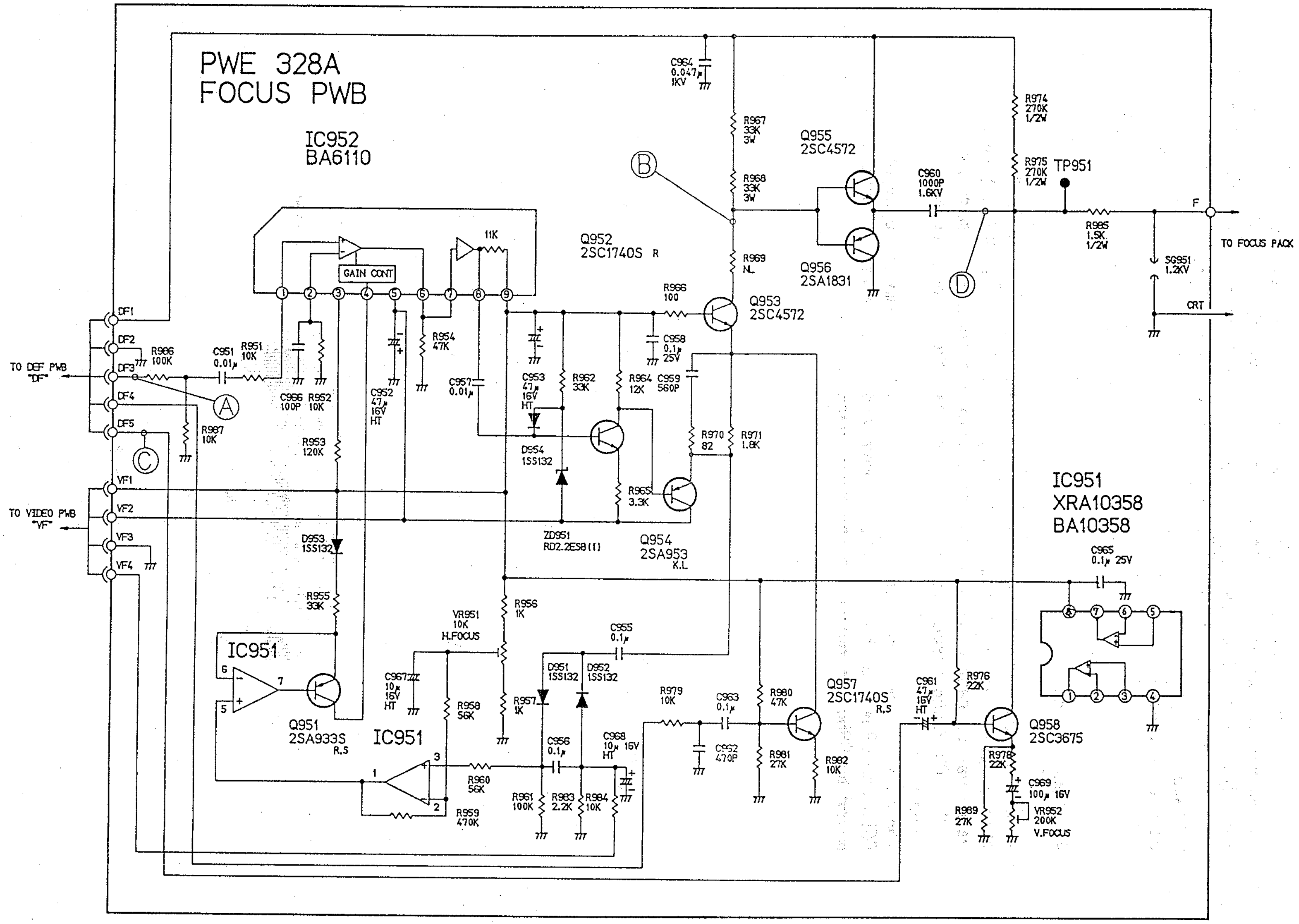
To correct the parallel distortion, the sawtooth voltage is supplied to the horizontal phase shifter circuit. The balance of the right and left distortion is adjusted by using the VR5W1. There is no correction at the center position of VR5W1 adjustment, and the sawtooth waveform voltage level and polality is changed by adjusting clockwise or counterclockwise.

4. Focus Circuit

A vertical parabolic signal is fed to CN-DF5, amplified by Q958, and then output. A horizontal parabolic signal is fed to CN-DF3, but Vp-p value varies depending upon the frequency. The control is made by IC951, IC952, and associated circuits so that the output becomes constant.
The parabolic wave output from pin ⑧ of IC952 is amplified by Q952, Q953, and Q954 and the H parabolic wave and the V parabolic wave are mixed by C960 for output to the focus pack.



(Fig. 4.a)


PWE 328A
FOCUS PWB
IC952
BA6110
GAIN CONT
11K
Q952
2SC1740S R
Q953
2SC4572
Q954
2SA953
K.L
Q955
2SC4572
Q956
2SA1831
Q957
2SC1740S
R.S
Q958
2SC3675
Q951
2SA933S
R.S
IC951
XRA10358
BA10358
IC951
IC951
C964 0.047μ 1KV
R967 33K 3W
R968 33K 3W
R969 NL
R966 100
C958 0.1μ 25V
C959 560P
R970 82
R971 1.8K
R974 270K 1/2W
R975 270K 1/2W
TP951
C960 1000P 1.6KV
R985 1.5K 1/2W
SG951 1.2KV
F
TO FOCUS PACK
CRT
R986 100K
C951 0.01μ
R951 10K
C966 100P
R952 10K
C952 47μ 16V HT
R954 47K
C957 0.01μ
C953 47μ 16V HT
R962 33K
R964 12K
R965 3.3K
D954 1SS132
ZD951 RD2.2ESB(1)
R987 10K
R953 120K
D953 1SS132
R955 33K
VR951 10K H.FOCUS
R956 1K
C967 10μ 16V HT
R958 56K
R957 1K
D951 1SS132
D952 1SS132
C955 0.1μ
C956 0.1μ
C968 10μ 16V HT
R960 56K
R959 470K
R961 100K
R983 2.2K
R984 10K
R979 10K
C963 0.1μ
C962 470P
R980 47K
R981 27K
R982 10K
C961 47μ 16V HT
R976 22K
R978 22K
C969 100μ 16V
R989 27K
VR952 200K V.FOCUS
C965 0.1μ 25V
DF1
DF2
DF3
DF4
DF5
VF1
VF2
VF3
VF4
TO DEF PWB "DF"
TO VIDEO PWB "VF"
A
B
C
D
1
2
3
4
5
6
7
8
9

(Fig. 4. b)

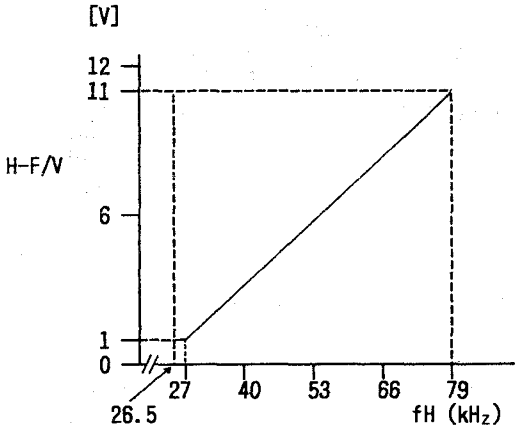
5. CPU Circuit

5.1 H-f/V Function

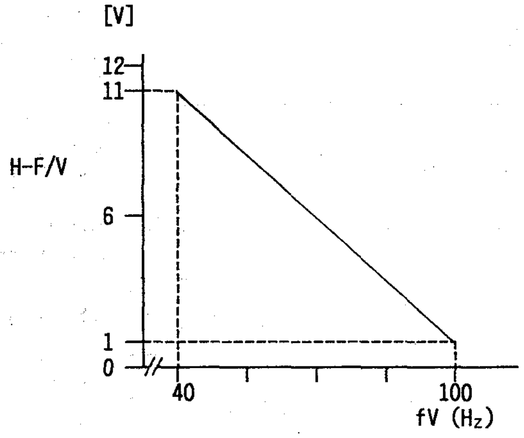
The horizontal sync signal wave shaped on the Video PWB is fed to pin ㉒ of the CPU. The CPU counts the frequency of the horizontal sync signal, and the appropriate DC voltage is output from IC802 (D/A converter) pin ④. This voltage is amplified by the amplifier 2.4 times and output to the DEF PWB via CN-P3. (See Fig. 5.1.)

5.2 V-f/V Function

The vertical sync signal waveform shaped on the Video PWB is fed to pins ⑳ and ㉖ of CPU. The CPU counts the frequency of the vertical sync signal, and the appropriate DC voltage is output from IC802 (DAC) pin ⑤. This voltage is amplified 2.4 times and output to the DEF PWB via CN-P6. (See Fig. 5.2)



(Fig. 5.1)

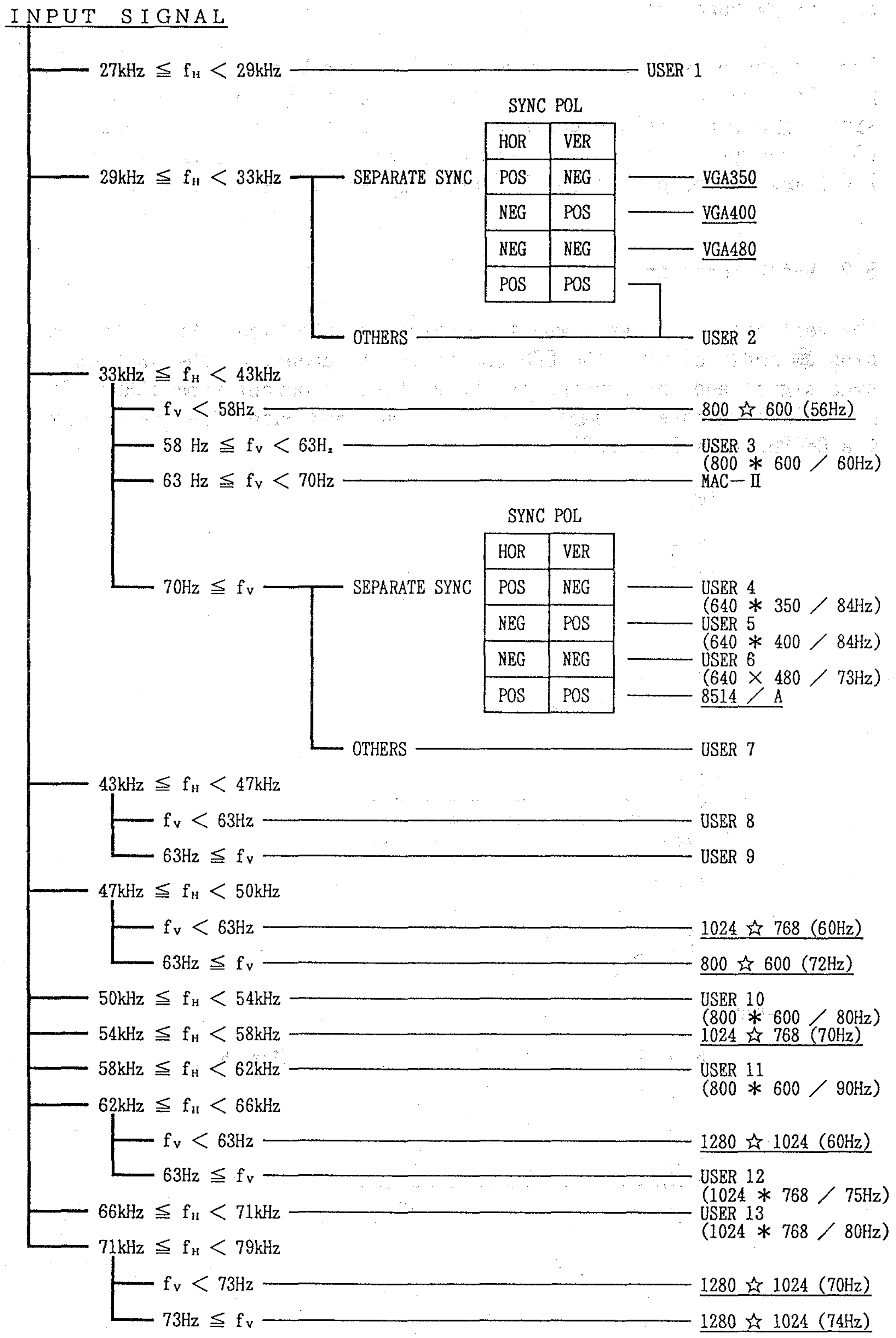


(Fig. 5.2)

5.3 Automatic Signal Discrimination Function

The CPU discriminates the input signal based on the horizontal/vertical frequencies, sync signal type, i.e. separate sync, separate composite sync or sync on green, and the sync polarity scheme (positive/negative).
Refer to "Signal Identification Flow Chart" (Fig. 5.3) for further details.

SIGNAL IDENTIFICATION FLOWCHARTHART


INPUT SIGNAL
27kHz ≦ f_H < 29kHz
USER 1
SYNC POL
HOR
VER
29kHz ≦ f_H < 33kHz
SEPARATE SYNC
POS NEG
VGA350
NEG POS
VGA400
NEG NEG
VGA480
POS POS
OTHERS
USER 2
33kHz ≦ f_H < 43kHz
f_V < 58Hz
800 ☆ 600 (56Hz)
58 Hz ≦ f_V < 63Hz
USER 3
(800 ∗ 600 / 60Hz)
63 Hz ≦ f_V < 70Hz
MAC－II
SYNC POL
HOR
VER
70Hz ≦ f_V
SEPARATE SYNC
POS NEG
USER 4
(640 ∗ 350 / 84Hz)
NEG POS
USER 5
(640 ∗ 400 / 84Hz)
NEG NEG
USER 6
(640 × 480 / 73Hz)
POS POS
8514 / A
OTHERS
USER 7
43kHz ≦ f_H < 47kHz
f_V < 63Hz
USER 8
63Hz ≦ f_V
USER 9
47kHz ≦ f_H < 50kHz
f_V < 63Hz
1024 ☆ 768 (60Hz)
63Hz ≦ f_V
800 ☆ 600 (72Hz)
50kHz ≦ f_H < 54kHz
USER 10
(800 ∗ 600 / 80Hz)
54kHz ≦ f_H < 58kHz
1024 ☆ 768 (70Hz)
58kHz ≦ f_H < 62kHz
USER 11
(800 ∗ 600 / 90Hz)
62kHz ≦ f_H < 66kHz
f_V < 63Hz
1280 ☆ 1024 (60Hz)
63Hz ≦ f_V
USER 12
(1024 ∗ 768 / 75Hz)
66kHz ≦ f_H < 71kHz
USER 13
(1024 ∗ 768 / 80Hz)
71kHz ≦ f_H < 79kHz
f_V < 73Hz
1280 ☆ 1024 (70Hz)
73Hz ≦ f_V
1280 ☆ 1024 (74Hz)

NOTE: ☆☆☆ SIGNAL HAS BACK UP MEMORY (12 SIGNALS).

(Fig. 5.3)

5.4 User Control Function

When the user switch on the Control PWB is pressed, the encoded signal (the circuit consisting of D101-D116) is fed to the CPU via CN-C2 - C7. The CPU causes data in the CPU to be changed by the above signal.
The user control function is divided into three by the user level.

5.4.1 User Level 1

The following control is done at user level 1.

Function	Output Pin of IC802	“CN-P”	Dwg. NO.
H POSITION	pin ⑫	pin ①	5.4.1.a
H SIZE	pin ⑬	pin ②	5.4.1.b
V POSITION	pin ⑭	pin ④	5.4.1.c
V SIZE	pin ⑮	pin ⑤	5.4.1.d

The CPU outputs DC voltage meeting the changed data from IC802 (D/A converter).

5.4.2 User Level 2

At user level 2,side pincushion corrections and R/G/B intensity adjustments are made.

(1) Side-Pin

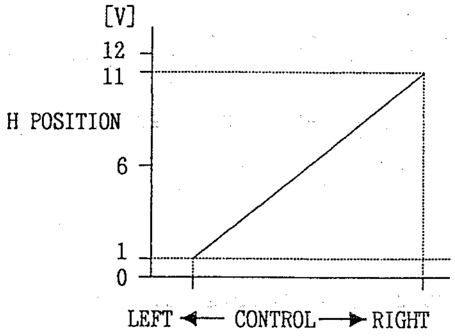
The operation of side-pin is the same as in the case of user level 1 (output pin of IC802: pin ⑥, “CN-P”: pin ⑦ Dwg. No. 5.4.2.a).

(2) R/G/B Intensity

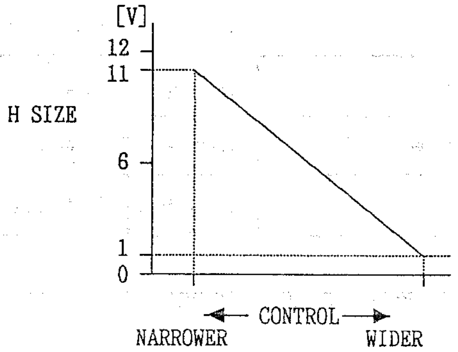
When the data is changed by the user control switch,the CPU causes the output (R: pin ⑬,G: pin ②,and B: pin ④) of IC861 (multiplier D/A converter) to be varied for each color.As a result,the amplitude of the video output voltage can be controlled for each color independently of others.

5.4.3 User Level 3

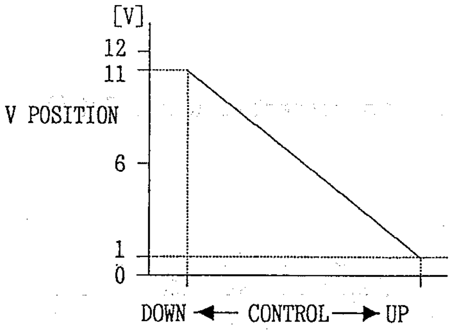
The control of R/G/B Sub-Brightness is made at user level 3.When the data is changed by the user control switch,the CPU cause the output voltage (R: pin ⑬,G: pin ②,B: pin ④) of IC860 (multiplier D/A converter) to be varied for each color.The cathode bias level can be controlled for color independently of others.



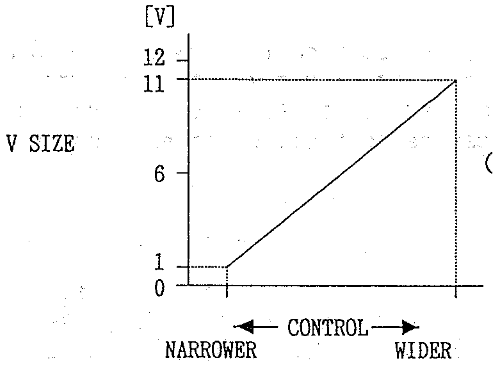
(Fig. 5.4.1.a)



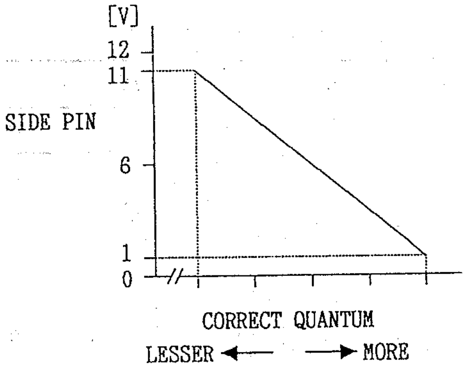
(Fig. 5.4.1.b)



(Fig. 5.4.1.c)



(Fig. 5.4.1.d)



(Fig. 5.4.2.a)

5.5 Data Memory Function

Each data described in step 5.4 is automatically stored in IC804 (E^2 PROM) four seconds after the last user control key has been pressed.
Data of horizontal and vertical amplitude and position data described in step 5.3 is stored in E^2 PROM by changing the address for each signal.
Side-pin data is stored in memory by changing the address at each band of horizontal frequency.
Data of R/G/B intensity and that of R/G/B Sub-Brightness is stored in memory by changing the address at each color set by the color switch (SW112).
The address of each data in E^2 PROM is shown in Fig. 5.5.

5.6 Various Switching Output

A switchover output from the CPU drives the horizontal/vertical oscillation/output circuits.

5.6.1 Horizontal System

The switchover output of the horizontal system is shown in Fig. 5.6.1.

5.6.2 Vertical System

The switchover output of the vertical system is shown in Fig. 5.6.2.

EEPROM MEMORY MAP

256 WORDS*8 BITS

MEMORY NAME	FACTORY DATA (BACK UP)				USER DATA			
	H PS	H SZ	V PS	V SZ	H PS	H SZ	V PS	V SZ
VGA350	00	01	02	03	30	31	32	33
VGA400	04	05	06	07	34	35	36	37
VGA480	08	09	0A	0B	38	39	3A	3B
800*600(56Hz)	0C	0D	0E	0F	3C	3D	3E	3F
MAC－Ⅱ	10	11	12	13	40	41	42	43
8514A	14	15	16	17	44	45	46	47
1024*768(60Hz)	18	19	1A	1B	48	49	4A	4B
800*600(72Hz)	1C	1D	1E	1F	4C	4D	4E	4F
1024*768(70Hz)	20	21	22	23	50	51	52	53
1280*1024(60Hz)	24	25	26	27	54	55	56	57
1280*1024(70Hz)	28	29	2A	2B	58	59	5A	5B
1280*1024(74Hz)	2C	2D	2E	2F	5C	5D	5E	5F
USER 1	——	——	——	——	60	61	62	63
USER 2	——	——	——	——	64	65	66	67
USER 3	——	——	——	——	68	69	6A	6B
USER 4	——	——	——	——	6C	6D	6E	6F
USER 5	——	——	——	——	70	71	72	73
USER 6	——	——	——	——	74	75	76	77
USER 7	——	——	——	——	78	79	7A	7B
USER 8	——	——	——	——	7C	7D	7E	7F
USER 9	——	——	——	——	80	81	82	83
USER 10	——	——	——	——	84	85	86	87
USER 11	——	——	——	——	88	89	8A	8B
USER 12	——	——	——	——	8C	8D	8E	8F
USER 13	——	——	——	——	90	91	92	93
(SPACE)	94～CD (58 WORDS)							

	FACTORY DATA FOR COLOR N (BACK UP FOR #1, #2)	USER DATA FOR COLOR #1	USER DATA FOR COLOR #2
RGBFLG	CE	D8	E2
R INTENSITY	CF	D9	E3
G INTENSITY	D0	DA	E4
B INTENSITY	D1	DB	E5
R SUB-BRT(SIGN)	D2	DC	E6
R SUB-BRT(VALUE)	D3	DD	E7
G SUB-BRT(SIGN)	D4	DE	E8
G SUB-BRT(VALUE)	D5	DF	E9
B SUB-BRT(SIGN)	D6	E0	EA
B BRT(VALUE)	D7	E1	EB

	FACTORY DATA (BACK UP)	USER DATA
SIDE-PIN DATA 1	EC	ED
SIDE-PIN DATA 2	EE	EF
SIDE-PIN DATA 3	F0	F1
SIDE-PIN DATA 4	F2	F3
SIDE-PIN DATA 5	F4	F5
SIDE-PIN DATA 6	F6	F7
SIDE-PIN (VGA350)	F8	F9
SIDE-PIN (VGA480)	FA	FB

(SPACE)	FC	SIDE-PIN ADJUST INITIAL FLAG	FD
EEPROM INITIAL FLAG	FE		
SELF ADJUST FLAG	FF		

NOTE: H PS: HORIZONTAL POSITION　　V PS: VERTICAL POSITION
H SZ: HORIZONTAL SIZE　　V SZ: VERTICAL SIZE

(Fig. 5.5)

H Select Output

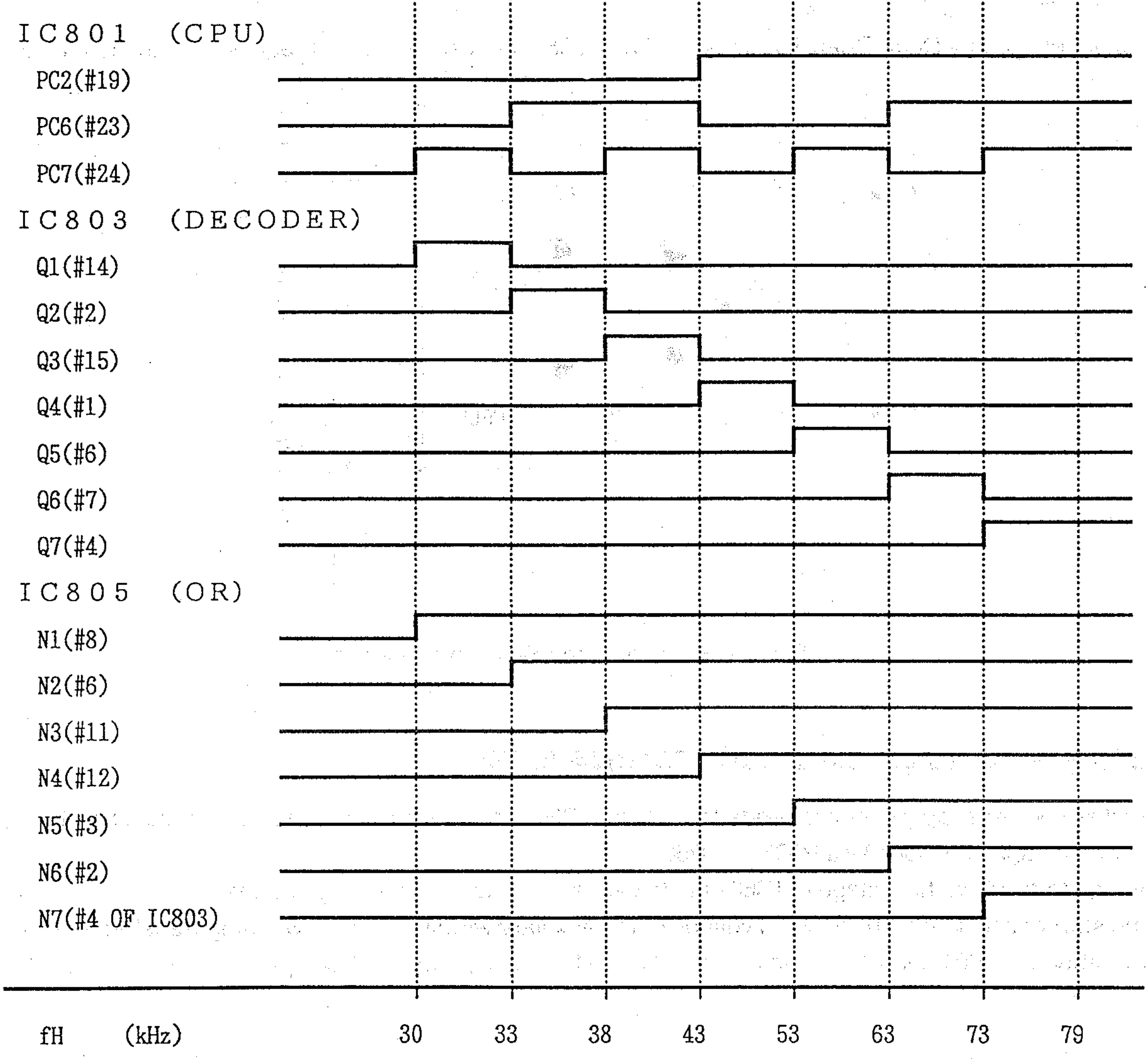

IC801 (CPU)
PC2(#19)
PC6(#23)
PC7(#24)
IC803 (DECODER)
Q1(#14)
Q2(#2)
Q3(#15)
Q4(#1)
Q5(#6)
Q6(#7)
Q7(#4)
IC805 (OR)
N1(#8)
N2(#6)
N3(#11)
N4(#12)
N5(#3)
N6(#2)
N7(#4 OF IC803)
fH (kHz)
30
33
38
43
53
63
73
79

Fig. 5.6.1

V Select Output

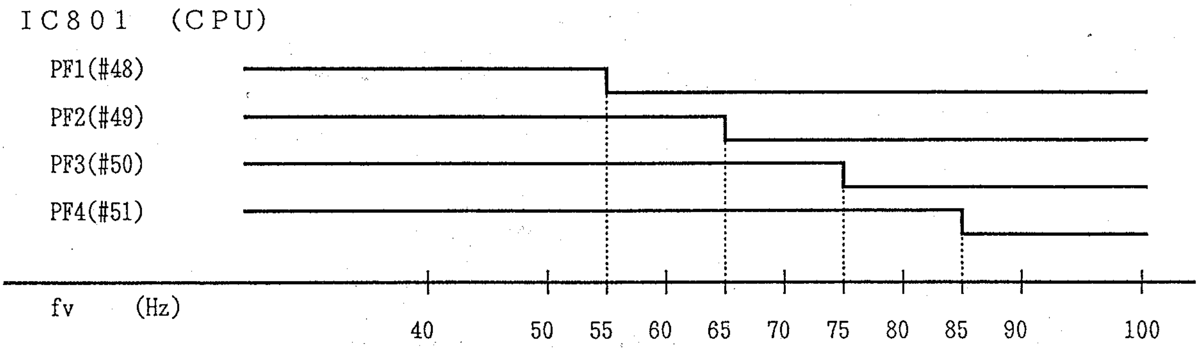
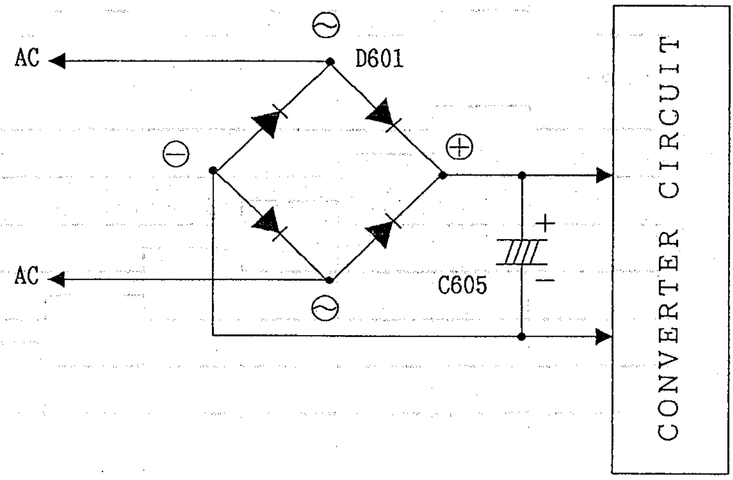

IC801 (CPU)
PF1(#48)
PF2(#49)
PF3(#50)
PF4(#51)
fv (Hz)
40
50
55
60
65
70
75
80
85
90
100

Fig. 5.6.2

6. SWITCHING REGULATOR UNIT

6.1 Rectifying and smoothing circuit

AC input is rectified by D601. Then, it is smoothed by C605. The resulting DC voltage is supplied to the converter circuit.


AC
D601
AC
C605
CONVERTER CIRCUIT

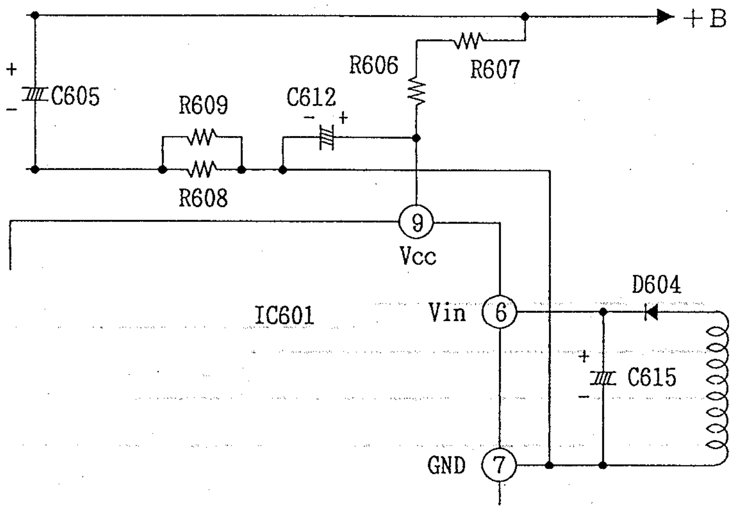
(Fig. 6.1) Rectifying and Smoothing Circuit

6.2.1 Auxiliary power supply circuit (JC-1741UMA-3, (N))

The auxiliary power supply circuit is needed to activate IC601. When the power is turned on, the charging current flows into the capacitors C612 via R606 and R607.

Oscillation starts when the voltage of IC601 pin 9 reaches 17V by this charging operation.

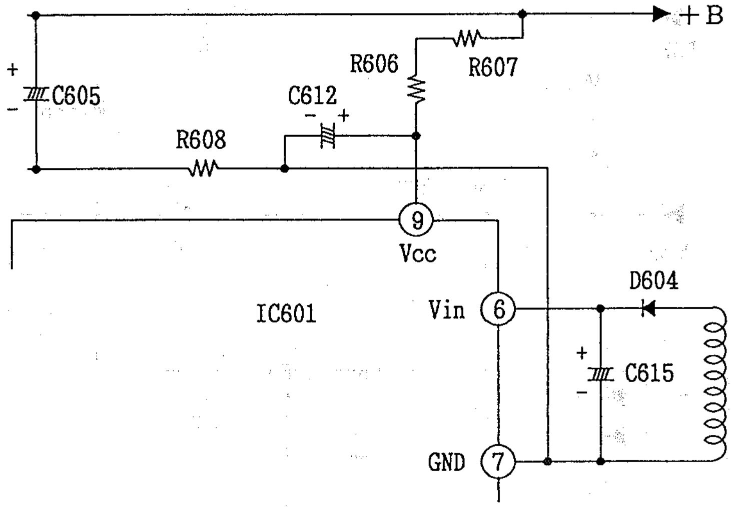
After the start of oscillation, the forward voltage of the auxiliary winding for the switching transformer is rectified and smoothed by D604 and C615. The resulting DC voltage is supplied to IC601 pin 6.


+B
R606
R607
C605
R609
C612
R608
9
Vcc
IC601
Vin
6
D604
C615
GND
7

(Fig. 6.2.1) Auxiliary Power Supply Circuit

6.2.2 Auxiliary power supply circuit (JC-1741UMB-3/B-3 (EE)/R-3)

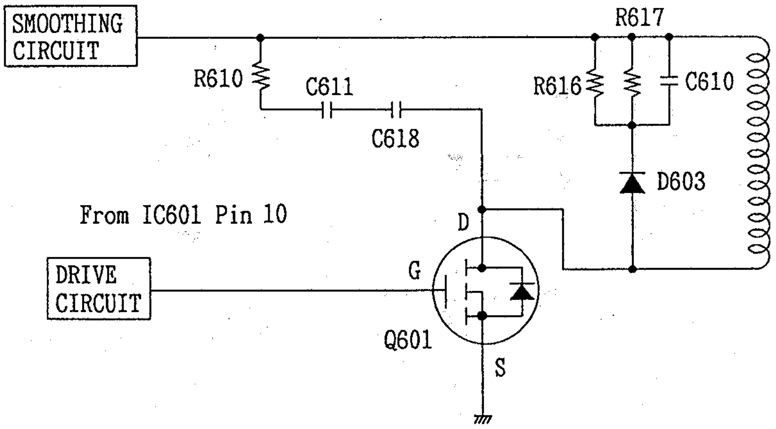
The auxiliary power supply circuit is needed to activate IC601. When the power is turned on, the charging current flows into the capacitors C612 via R604 and R607.
Oscillation starts when the voltage of IC601 pin 9 reaches 17V by this charging operation.
After the start of oscillation, the forward voltage of the auxiliary winding for the switching transformer is rectified and smoothed by D604 and C615. The resulting DC voltage is supplied to IC601 pin 6.


+B
R606
R607
+
C605
-
C612
- +
R608
9
Vcc
IC601
Vin
6
D604
+
C615
-
GND
7

(Fig. 6.2.2) Auxiliary Power Supply Circuit

6.3 Converter circuit

The converter circuit consists of the primary winding of the switching transformer T601, a switching device Q601, and surge absorbers (C610, R616, R617, D603, C611, C618 and R610) that are connected to the primary winding. The oscillating signal from IC601 pin 10 is applied to the gate of Q601 causing the drain-source to be turned OFF and ON so that the oscillating voltage is applied to the primary winding of T601.

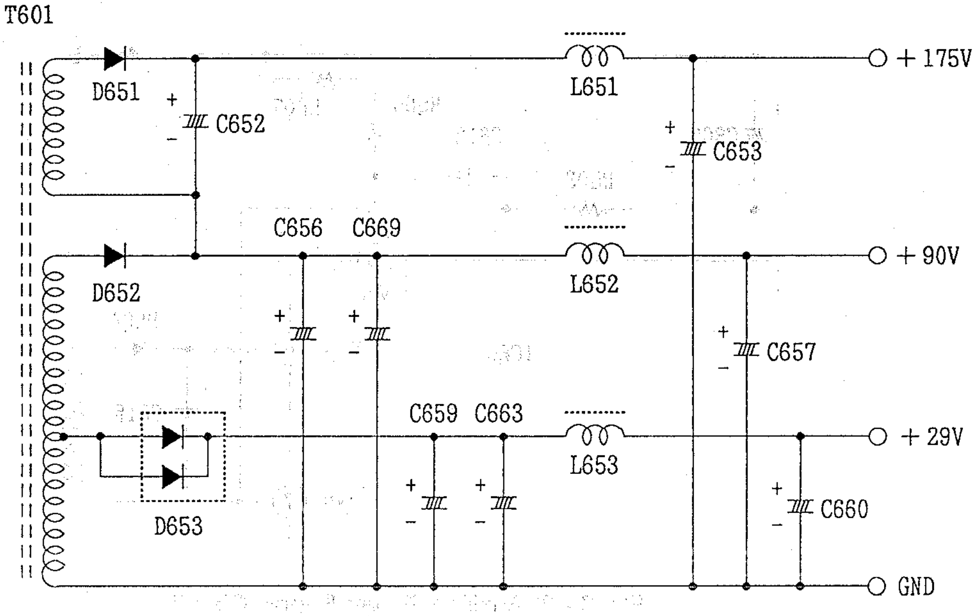

SMOOTHING CIRCUIT
R617
R610
C611
R616
C610
C618
D603
From IC601 Pin 10
D
DRIVE CIRCUIT
G
Q601
S

(Fig. 6.3) Converter Circuit

6.4 Output rectifying and smoothing circuit

The fly-back voltages generated at the secondary windings of the switching transformer T601 are rectified by D651, D652 and D653. Then, these voltages are smoothed by C652, C653, C656, C669, C657, C659, C663 and C660 so that rectified DC voltages are obtained.

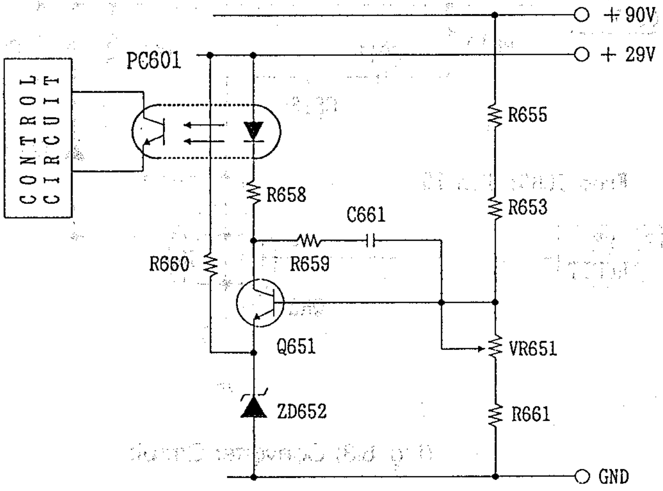
The fly-back voltages are kept constant by controlling the ON period duty cycle of Q601 in the converter circuit.


T601
D651
C652
L651
C653
+ 175V
C656
C669
D652
L652
C657
+ 90V
C659
C663
L653
+ 29V
C660
D653
GND

(Fig. 6.4) Output Rectifying and Smoothing Circuit

6.5 Error detection amplifier circuits

The output voltage 90V is divided by the network resistors. This divided voltage is compared to the reference voltage at the error amplifier Q651, and ZD652. An error signal is applied to the control circuit via the photocoupler PC601.

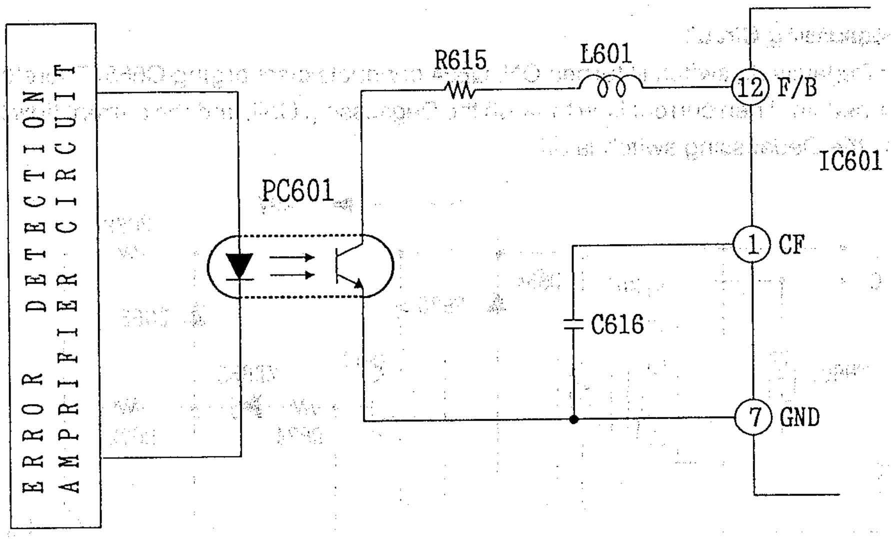

CONTROL CIRCUIT
PC601
+ 90V
+ 29V
R655
R658
C661
R653
R660
R659
Q651
VR651
ZD652
R661
GND

(Fig. 6.5) Error Detection Amplifier Circuit

6.6 Oscillating and control circuits

The oscillating and control circuits are contained in IC601.

IC601 has a built-in oscillator whose frequency is determined by C616 connected to pin 1. The output of the error detection amplifier circuit is feed back to the control circuit pin 12 via PC601 to control the duty cycle of Q601 so that output voltage is kept constant.

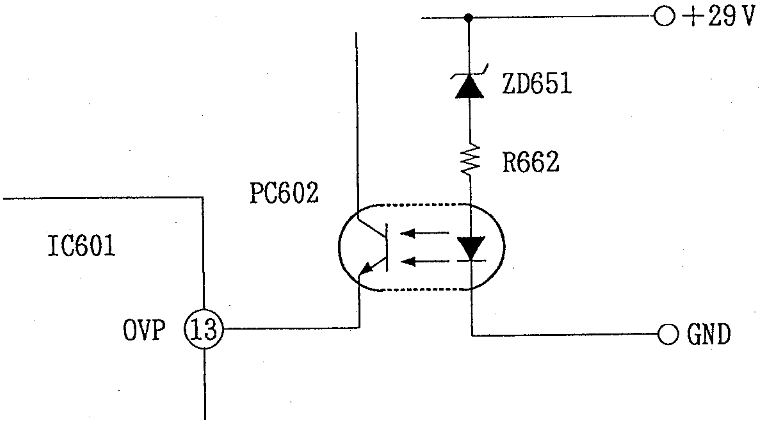

ERROR DETECTION
AMPRIFIER CIRCUIT
PC601
R615
L601
12 F/B
IC601
1 CF
C616
7 GND

(Fig. 6.6) Oscillating and Control Circuit

6.7 Over voltage protection

If some failure occurs and the 29V line output voltage increases beyond 33V to 38V, the voltage at the output is sensed by the Zener Diode ZD651. These Diode will activate the LED within the photocoupler PC602, and turn on the transistor within it.

Once the transistor is on, pin 13 voltage of IC601 will go high, stopping the oscillation within this IC.


+29 V
ZD651
R662
PC602
IC601
OVP 13
GND

(Fig. 6.7) Over Voltage Protection

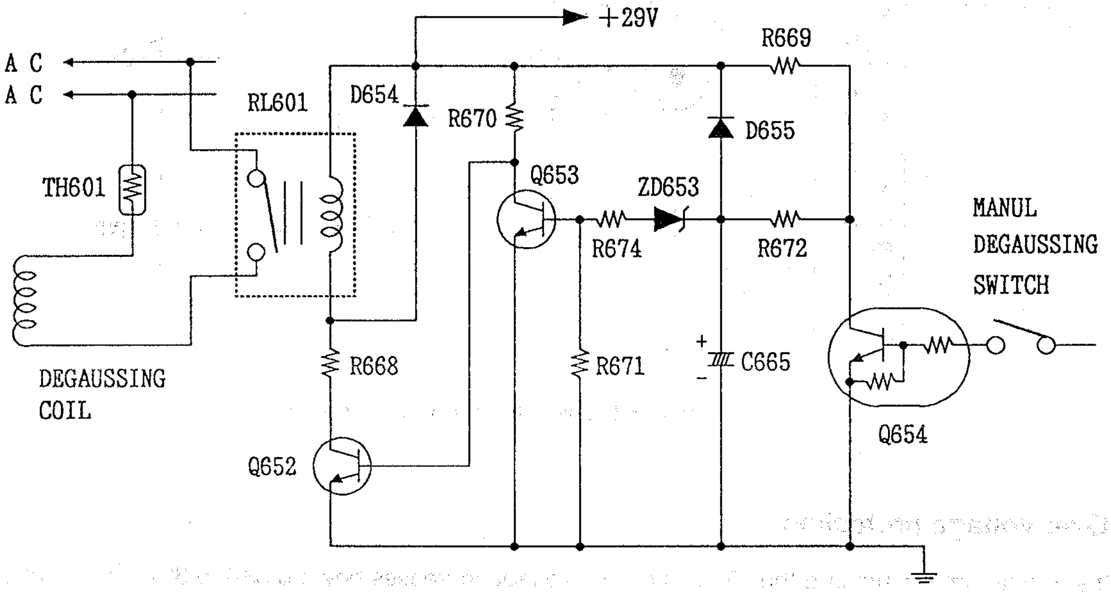
6.8 Auto and manual degaussing circuit

(1) Auto Degaussing Circuit

When the unit is turned ON. The 29V DC output at K3 rises. This will cause Q652 to turn ON. During the period of Q652 turned on, the current flows through the Degaussing Coil.
The ON period for this transistor is determined by R669, R672, ZD653 and C665. (approx. 3 sec.)
After the approx. 3 sec, Q653 turn on, and this will cause Q652 to turn off.

(2) Manual Degaussing Circuit

When the Degaussing switch is turned ON, Q654 conducts discharging C665. Therefore, Q653 turns off and Q652 is turned on. Then current flow through the Degaussing Coil, and the current flow through it until approx. 3 sec after the Degaussing switch is off.

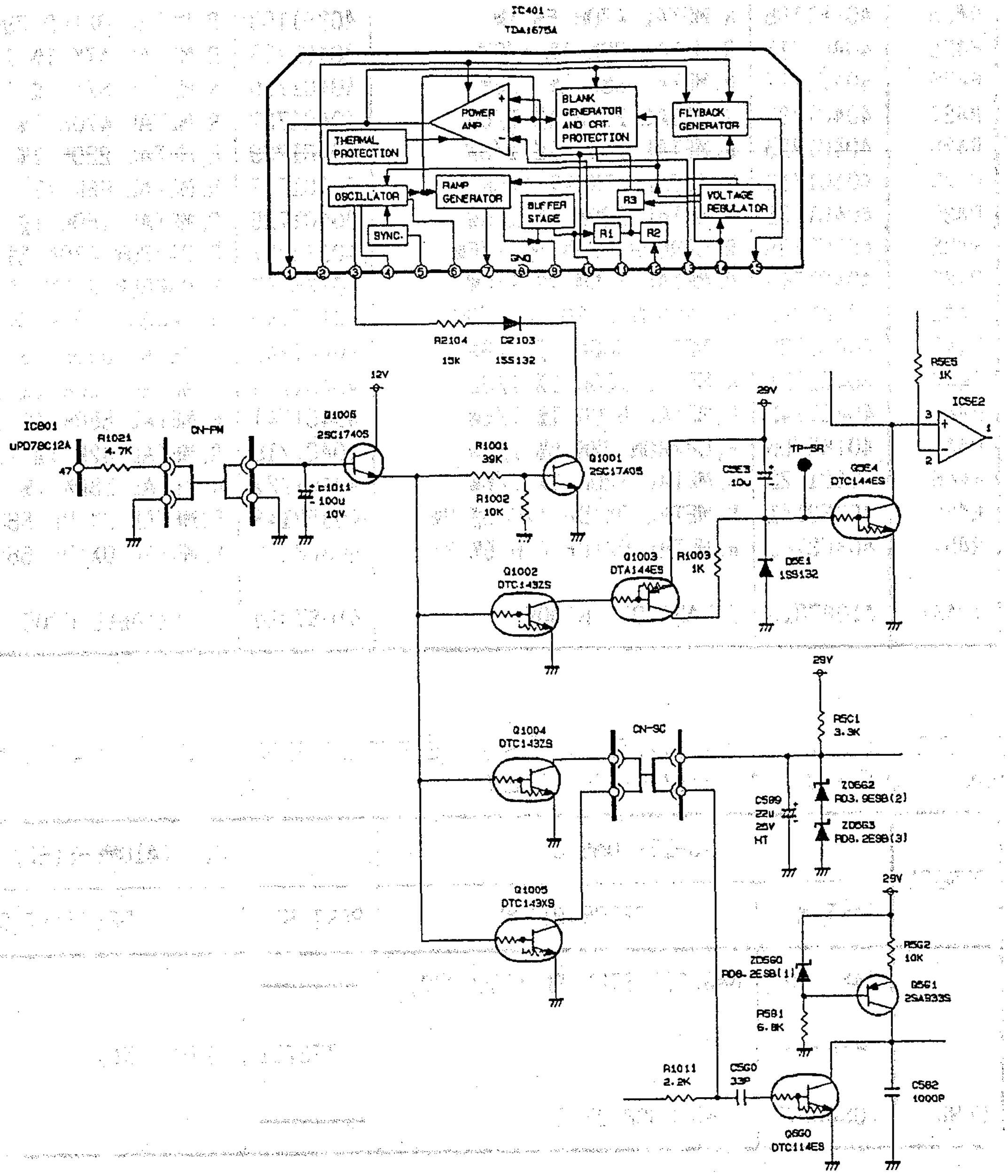

+29V
A C
A C
RL601
D654
R670
R669
D655
TH601
Q653
ZD653
R674
R672
MANUL
DEGAUSSING
SWITCH
R668
R671
+
-
C665
DEGAUSSING
COIL
Q654
Q652

(Fig. 6.8) Auto and Manual Degaussing Circuit

7. INTELLIGENT POWER MANAGER (IPM) SYSTEM

7.1 IPM CIRCUIT

The monitor goes into power save mode when it detects no vertical sync input, provided that its video cable is properly connected to a PC IC801 pin 47's output goes high turning on Q1001~Q1005.
Then IPM circuit operate as follows.
The operation of vertical deflection IC401 is stopped by Q1001.
The operation of SR TRANS drive circuit is stopped by Q1002 and Q1003.
The operation of DC/DC converter is stopped by Q1004 and Q1005.
Then the horizontal deflection and high voltage shut down.


IC401
TDA1675A
POWER AMP
BLANK GENERATOR AND CRT PROTECTION
FLYBACK GENERATOR
THERMAL PROTECTION
OSCILLATOR
RAMP GENERATOR
BUFFER STAGE
R3
VOLTAGE REGULATOR
SYNC.
R1
R2
GND
R2104
15K
D2103
1SS132
12V
IC801
uPD78C12A
47
R1021
4.7K
CN-PM
Q1006
2SC1740S
C1011
100u
10V
R1001
39K
R1002
10K
Q1001
2SC1740S
29V
R5E5
1K
IC5E2
3
2
1
TP-SR
C5E3
10u
Q5E4
DTC144ES
Q1003
DTA144ES
R1003
1K
D5E1
1SS132
Q1002
DTC143ZS
29V
R5C1
3.3K
Q1004
DTC143ZS
CN-SC
ZD562
RD3.9ESB(2)
C589
22u
25V
HT
ZD563
RD8.2ESB(3)
29V
Q1005
DTC143XS
R5G2
10K
ZD560
RD8.2ESB(1)
Q561
2SA933S
R581
6.8K
R1011
2.2K
C560
33P
C582
1000P
Q560
DTC114ES

PART DIFFERENCE LIST

PART DIFFERENCE LIST BETWEEN JC-1741UMA-3 AND JC-1741UMA-3 (N)

SYMBOL	JC-1741UMA-3		JC-1741UMA-3(N)	
	PART NO	DESCRIPTION	PART NO	DESCRIPTION
CRT	33017512	CRT AF17G9SLB22-K-TC06	33017514	CRT M41KMG20XX02(U3)
C412	427F4611	C,FILM 50V 6800PF	427F4615	C,FILM 50V 0.015UF
C59C	42839708	C,METAL 400V 0.33UF 5%	42839707	C,METAL 400V 0.27UF 5%
R405	403F1165	R,METAL 470H 5% 1W	403F1163	R,METAL OXIED 390H 5% 1W
R425	404C1711	R,METAL 39K 1% 1/6W	404C1713	R,METAL 47K 1% 1/6W
R426	404C1717	R,METAL 68K 1% 1/6W	404C1719	R,METAL 82K 1% 1/6W
R427	404C1731	R,METAL 270K 1% 1/6W	404C1737	R,METAL 470K 1% 1/6W
R428	404C1725	R,METAL 150K 1% 1/6W	404C1729	R,METAL 220K 1% 1/6W
R429	404C1713	R,METAL 47K 1% 1/6W	404C1717	R,METAL 68K 1% 1/6W
R430	404C1721	R,METAL 100K 1% 1/6W	404C1725	R,METAL 150K 1% 1/6W
R438	401K5735	R,CARBON 390K 5% 1/6W	401K5737	R,CARBON 470K 5% 1/6W
R439	404C1745	R,METAL 1.0M 1% 1/6W	401K5757	R,CARBON 3.3M 5% 1/6W
R440	401K5753	R,CARBON 2.2M 5% 1/6W	401K5743	R,CARBON 820K 5% 1/6W
R441	404C1739	R,METAL 560K 1% 1/6W	404C1741	R,METAL 680K 1% 1/6W
R442	404C1721	R,METAL 100K 1% 1/6W	404C1723	R,METAL 120K 1% 1/6W
R444	404C1743	R,METAL 820K 1% 1/6W	404C1741	R,METAL 680K 1% 1/6W
R445	401K5705	R,CARBON 22K 5% 1/6W	404C1719	R,METAL 82K 1% 1/6W
R446	404C1723	R,METAL 120K 1% 1/6W	404C1727	R,METAL 180K 1% 1/6W
R456	403F3141	R,METAL OXIDE 47H 5% 3W	403F3143	R,METAL OXIDE 56H 5% 3W
R457	403F3141	R,METAL OXIDE 47H 5% 3W	403F3143	R,METAL OXIDE 56H 5% 3W
VR431	41087015	R,VARIABLE B300K	41087014	R,VARIABLE B200

PART DIFFERENCE LIST BETWEEN JC-1741UMB-3 AND JC-1741UMB-3 (EE)

SYMBOL	JC-1741UMB-3		JC-1741UMB-3(EE)	
	PART NO	DESCRIPTION	PART NO	DESCRIPTION
	24813191	BAG,POLYETHYLENE(150*370)	———	
	———		25775751	LABEL (EE)
CORD	70800071	LINE CORD 3P E	———	

REPLACEMENT PARTS LIST

The components specified Model JC-1741UMA-3

Note: The components identified by⚠make are critical for safety.
Replace only with parts Number specified.

SYMBOL	PART NO	DESCRIPTION
*** CRT & TUNER ***		
⚠CRT	33017512	CRT AF17G9SLB22-K-TC06
*** ICS ***		
⚠IC5E1	370A1009	IC UPC1093J-T (REG)
IC503 IC8G0 IC8G2	37011018	IC UPC311C (COMP)
IC402 IC5G1	37011024	IC UPC3403C (OP-AMP)
⚠IC2001⚠IC2002	37011132	IC UPC4082C (OP-AMP)
IC471 IC5S2 IC506 IC509 IC809 IC810 IC863 IC951	37011206	IC XRA10358 (OP-AMP)
IC862 IC864	37011210	IC XRA10324 (Q OP-AMP)
⚠IC5E2 IC5G0 IC8A2 IC8G1	37011262	IC XRA10393 (COMP)
IC431 IC505	37051036	MOS UPD4066BC
IC803	37051042	MOS UPD4028BC (BCD DECI)
IC8G5	37051096	IC SN74LS367AN (BUFF)
IC502 IC8G4	37051179	IC SN74LS123N (MONO MLT)
IC805	37053036	MOS SN74HC32N (OR)
IC5A1	37053390	MOS HD74HC123AP
IC804	37055401	MOS XRM93C56B-E
⚠IC501	37056295	IC LA7851
IC702 IC703 IC704	37056433	IC M51399P
IC5S1 IC952	37056618	IC BA6110
IC601	37056810	IC M67297 (SW.REG CONT)
IC860 IC861	37056812	IC M62362P
IC802	37056813	IC M62359P
IC8G3	37056867	IC M52036SP
IC5S5	37056877	IC NJM4200D (MULTIPLIER)
IC571 IC8A1	37056885	IC NJM3404AD
IC401	37056887	IC TDA1675A
IC705 IC706 IC707	37056905	IC VPA12H
IC5S3 IC5S4 IC504 IC806 IC807 IC808	37056917	IC XRA10324A (Q OP-AMP)
IC701	37056974	IC M52310P
IC801	37076116	MOS UPD78C14G-J13-36
IC811	371E1514	IC PST529D-2(T)(VOLTAGE D
IC510 IC511	37101543	IC XRA10339

SYMBOL	PART NO	DESCRIPTION
*** TRANSISTORS ***		
⚠Q5M4	350A1500	TR 2SA1767-TA
Q1001 Q1006 ⚠Q2002 Q421 Q462 Q5G2 Q5G4 Q5M1 Q5R3 Q572 Q652 Q653 Q714 Q715 Q716 Q8A2 Q8A4 Q8A6 Q8A8 Q807 Q861 Q862 Q952 Q957	350E3218	TR 2SC1740S-T R
Q740 Q741 Q742	350H4417	TR,2SC1473-TA Q
Q701 Q702 Q703 Q704 Q705 Q706 Q710 Q726 Q727 Q728 Q731 Q733	350H4808	TR 2SC2901K-T(FT=400MHZ)
Q7C0	350H5017	TR,2SC3811-TA Q
Q5A1 Q5R2 Q502 Q806	350H5018	TR,2SC3811-TA R
Q954	350K4311	TR 2SA953-T K
⚠Q5E2	350K4411	TR 2SA952 K,AT
Q5A3	350K4412	TR 2SA952 L,AT
⚠Q2001 Q5G5 Q5M2 Q5R4 Q501 Q56E Q573	350K4518	TR 2SA933-T R
Q743 Q744 Q745	350K5217	TR,2SA1018-TA Q
Q5G1 Q5G3 Q5M0 Q5S1 Q711 Q712 Q713 Q8A3 Q8A7 Q863 Q864 Q951	350K5718	TR 2SA933S-T R
Q732	350K7500	TR 2SA1206-T
Q956	35011600	TR 2SA1831
Q451	35025211	TR 2SB546 K
Q571	35025212	TR 2SB546 L
Q5A2 ⚠Q5E1	35050918	TR 2SC1384 R
Q651	35053012	TR 2SC1941 L
Q481	35056312	TR 2SC2688 L
Q482	35058905	TR,2SC1841 E
Q452	35063411	TR,2SD401A K
Q461 Q471 Q8A1 Q8C0	35065416	TR,2SD882 P
Q723 Q724 Q725	35080200	TR 2SC2407/2407A

SYMBOL	PART NO	DESCRIPTION
Q958	35084600	TR,2SC3675
Q953 Q955	35094200	TR 2SC4572
⚠Q581	35094300	TR 2SC3998
Q422 Q423 Q424 Q425	351A0690	TR DTC115ES-TP
⚠Q5E4	351G0553	TR DTA143ES-T
Q56A Q56C Q59A Q59E	351G0560	TR DTA144WS-T
Q1003	351G0561	TR DTA144ES-T
Q708 Q8G0 Q8G1	351G0600	TR DTA114ES-T
⚠Q2005 ⚠Q2006 Q5G0 Q5R0 Q707 Q709 Q719 Q734 Q8A5 Q8G2 Q8G4 Q802 Q803 Q804 Q805	351G0601	TR DTC114ES-T
⚠Q5E0 Q50A Q51A Q52A Q53A Q54A Q55A Q58A Q59C Q59F Q717 Q718 Q8G3	351G0602	TR DTC144ES-T
Q801	351G0641	TR DTC114YS-T
Q654	351G0653	TR DTC123ES-T
Q2101 Q5R1	351G0655	TR DTC143ES-TP
Q1005	351G0656	TR DTC143XS-T
Q1002 Q1004	351G0657	TR DTC143ZS-TP
Q5G6 Q5M3 Q574	35122500	TR 2SK758
Q8A9	35122600	TR 2SK701
⚠Q5A4 ⚠Q5A5	35122800	TR 2SK1271
Q601	35125900	TR,2SK1411
⚠Q5E3	35126900	TR 2SK806
Q591 Q592 Q593 Q594 Q595 Q596	35127300	TR 2SK947-M
Q860	35560416	TR 2SD794A P
CR601	35595014	TRIAC AC10DGM
*** DIODES ***		
D605 D606S D607S	360K1010	DIODE,SI.1S2472
D101 D102 D103 D104 D105 D106 D107 D108 D109	360K1027	DIODE 1SS132

SYMBOL	PART NO	DESCRIPTION
D110 D111 D112 D113 D114 D115 D116 D2003 ⚠D2006 ⚠D2008 D2101 D2102 D2103 D401 D5A0 D5A1 D5A3 ⚠D5E1 D5G2 D5G4 D5G5 D5G6 D5M0 D5M2 D5M3 D5M4 D5R1 D501 D502 D591 D592 D654 D655 D7G0 D701 D702 D703 D704 D705 D706 D707 D708 D709 D710 D711 D712 D713 D714 D715 D716 D717 D718 D719 D720 D721 D722 D723 D725 D726 D727 D728 D729 D730 D8A1 D8A2 D8A3 D8A4 D8A5 D8A6 D8G0 D8G1 D8G2 D8G3 D8G4 D8G5 D8G6 D8G7 D8G8 D8G9 D8H2 D8H3 D8H4 D803 D804 D805 D806 D860 D861 D862 D863 D864 D901 D951 D952 D953 D954	360K1027	DIODE 1SS132
D482 D491 D755 D756 D757 D758 D759 D760 D761 D762 D763 D902	360K1032	DIODE 1SS82-TA
ZD801	360K3087	DIODE RD3.0EB-T4
⚠ZD5E2	360K3098	DIODE RD12EB(3)-T4
ZD860	360K3114	DIODE 8.2EB(1)
ZD452	360K3118	DIODE RD10EB(1)-T4
ZD653	360K3123	DIODE RD20EB(3)
ZD652	360K3124	DIODE RD8.2EB (3)-T4
ZD471 ZD5A1 ⚠ZD5E1	360K3134	DIODE RD15EB(2)-T4

SYMBOL	PART NO	DESCRIPTION
ZD571	360K3134	DIODE RD15EB(2)-T4
ZD5R1	360K3145	DIODE RD27EB-T4
ZD5A0	360K3157	DIODE RD5.1EB(3)-T4
ZD503	360K3160	DIODE RD8.2EB(2)-T4
ZD5R2	360K3161	DIODE RD12EB(2)-T4
ZD8A3	360K3169	DIODE RD6.2EB(2)-T4
ZD461 ZD561 ZD591 ZD592	360K3170	DIODE RD6.2JSB(2)/JSAB(2)
ZD502	360K3188	DIODE RD3.9EB(2)-T4
ZD711 ZD712 ZD713	360K3300	DIODE RD2.0EB(1)-T4
ZD5A2	360K3326	DIODE RD18EB(3)-T4
ZD501	360K3403	DIODE RD5.1JSB(1)-T4
⚠ZD2001⚠ZD2002	360K3416	DIODE RD5.1JSB(2)-T4
ZD951	360K3605	DIODE RD2.2ESB(1)-T4
ZD5A3	360K3620	DIODE RD3.6ESB(1)
ZD401	360K3623	DIODE RD3.9ESB(1)-T4
ZD5G2	360K3624	DIODE RD3.9ES AB2-T4
ZD8A4	360K3634	DIODE RD5.1ESB(1)-T4
⚠ZD5E0	360K3635	DIODE RD5.1ESB(2)-T4
ZD803	360K3637	DIODE RD5.6ESB
ZD2101	360K3647	DIODE RD6.8ESB(2)-T4
ZD5G0 ZD710 ZD8A1	360K3654	DIODE RD8.2ES AB1-T4
⚠ZD5D1	360K3655	DIODE RD8.2ESB(2)/ESAB(2)
ZD5G3	360K3656	DIODE RD8.2ES AB3-T4
ZD5G1	360K3658	DIODE RD9.1ESB(1)-T4
⚠ZD5E4	360K3675	DIODE RD13ESB(2)-T4
ZD8A2	360K3683	DIODE RD16ESB(2)-T4
ZD651	360K3721	DIODE RD36ESB(3)-T4
D602	361K7303	DIODE EU02 V1
⚠D5A2	361K7312	DIODE EP01C-V
⚠D5E2 ⚠D5E4 ⚠D572 D590 D8A9 D8C0	361K7562	DIODE EGP10G G23
D5M5	361K7637	DIODE EGP20G G23
MD801 MD802	361K8233	DIODE DAN209S-TP
D603	36107174	DIODE RU1P
D656	36107178	DIODE RU3
D573 D574 D8A7	36107293	DIODE RK14
D651 D652	36107320	DIODE FMG-G26S
⚠D5D1 ⚠D5E3	36107541	DIODE EG01A
⚠D583 ⚠D584	36107560	DIODE RG2A2

SYMBOL	PART NO	DESCRIPTION
D5G7	36107638	DIODE EGP30G
D653	36107680	DIODE D5LC20U
⚠D582	36108238	DIODE FMP-G3FS
ZD802	367K0017	DIODE RD4.7EB-T4
ZD861	367K0048	DIODE RD5.1FB(2)
D120	36801340	LED SLR-34MC3F
D121 D122	36801343	LED SLA-570MT3F(XJ,XK,XL)
D601	36808230	DIODE RBV-1506
D402 D481 D5G3 D5G8 D731 D732 D8C3 D8C4	369K2136	DIODE RGP10G,AT
ZD451	369K5512	DIODE,ZENER RD18JSB2
D604S	36902175	DIODE S3LA20-4004 P15
D5G0 D5G1	380K5054	VARISTOR MA29W-A (TP)
TH601	38102046	THERMISTOR 902P61D050MP14
PC601 PC602	38200234	IC PC817C/D

*** TRANSFORMERS ***

SYMBOL	PART NO	DESCRIPTION
T571	45804008	TRANS,H.DRIVE
L5M1	46206005	TRANS,CHOKE 4MH
L5G1	46206006	TRANS,CHOKE 2MH
T5G0 T5M0	46302105	TRANS,FERRITE
T8A1	46304111	TRANS,CONVERTER
T601	46311115	TRANS,SWITCHING W328
⚠T5A1	47105677	F.B.T.(SR)
⚠T581	47710017	TRANS,H.OUTPUT

*** VARIABLE RESISTORS ***

SYMBOL	PART NO	DESCRIPTION
VR701 VR702 VR703	410G1210	R,VARIABLE B3.3K
VR8A1	410G1307	R,VARIABLE B1.0K
VR861	410G1311	R,VARIABLE B4.7K
VR860	410G1313	R,VARIABLE B10K
VR801 VR802	410G1415	R,VARIABLE B22K-T
VR101 VR102	41011106	R,VARIABLE B10K-V
VR411	41087005	R,VARIABLE B1K
VR401 VR421 VR590 VR951	41087009	R,VARIABLE B10K
VR441 VR56A	41087012	R,VARIABLE 50K
VR56C VR56E VR901 VR952	41087014	R,VARIABLE B200

SYMBOL	PART NO	DESCRIPTION
VR431	41087015	R,VARIABLE B300K
VR461	41087056	R,VARIABLE B2K
VR5U1 VR5W1	41087059	R,VARIABLE 10K
VR5S2	41087066	R,VARIABLE B500K
VR720 VR721 VR722 VR723 VR724 VR725	415K5159	R,VARIABLE B20K
VR5D1	41505005	R,VARIABLE B2K
⚠VR2001⚠VR5E1	41505007	R,VARIABLE B5K
VR651	41505103	R,VARIABLE B500

*** RELAYS & SWITCHES ***

SYMBOL	PART NO	DESCRIPTION
SW401	65161048	SWITCH,SLIDE
SW701	65161066	SWITCH,SLIDE 2-6L-2NS(SI)
SW111	65161067	SWITCH,SLIDE 1-6L-2NS V
SW112	65161068	SWITCH,SLIDE 1-6L-3NS V
SW101 SW102 SW103 SW104 SW105 SW106 SW107 SW108 SW109 SW110	653F0031	SWITCH,PUSH BUTTON
	65360029	SWITCH,PUSH BUTTON
RL601	65660019	RELAY G5P-1(24V)
RL590 RL591	65660027	RELAY G6C1117P-US DC24V

*** COILS & FILTERS ***

SYMBOL	PART NO	DESCRIPTION
MR802	390C0151	R,NETWORK 8*10K 5% 1/8W
MR801	390C9804	R,NETWORK
MR803 MR804 MR805 MR806 MR807	390C9805	R,NETWORK 4*1.0K 5% 1/6W
MC801 MC802 MC803 MC804	39013042	C,NETWORK 25V 0.01UF
⚠L591 ⚠L592	60919121	COIL,H.LIN. N-59 (16T)
⚠L590	60919122	COIL,H.LIN. N-60 (10T)
L5S1	610E1717	COIL,FILTER 10UH
L710 L711 L712	610E1726	COIL,FILTER 56UH
L602	610F5002	FERRITE BEADS (B-02-RT)
L720 L721 L722	610F6014	COIL,FILTER 5.6UH
L901 L902 L903	610F7619	COIL,FILTER 0.15UH
L8A5	61055001	COIL,FILTER 8500UH
FL601	61062171	LINE FILTER (4.3A 2.7MH)
INLET	61062178	POWER LINE FILTER

SYMBOL	PART NO	DESCRIPTION
⚠L5E1 L5G0 L5G2 ⚠L5M0 L8A1 L8A2	61064006	COIL,FILTER 50UH
⚠L594	61070240	FILTER CHOKE 4MH
L601	61072349	COIL,FILTER
L704	61099011	COIL,CHOKE 33UH
L653	61099013	COIL,CHOKE 10UH
L652	61099014	COIL,CHOKE 33UH
⚠L593	61099019	COIL,CHOKE 1.0MH
L651	61099036	FILTER CHOKE
L8A3	61099047	FILTER CHOKE
DEG	61317101	COIL,DEGAUSSING
LC901	616K6028	NOISE FILTER 1H223X-TA
LC701 LC702 LC703 LC704	616K6801	NOISE FILTER 2R2-101-T
LC711 LC712 LC713 LC714 LC715 LC902	616K6946	NOISE FILTER TH28123MA
LC708 LC709 LC710	616K6964	NOISE FILTER TX07250NBT
LC705 LC706 LC707	616K6965	NOISE FILTER TX09500NBT

*** PWB ASSYS ***

SYMBOL	PART NO	DESCRIPTION
	84M21C01	VIDEO PWB ASSY
	84N65J01	CRT PWB ASSY
	84N65T03	TR PWB ASSY
	⚠84P46A01	SW.REG PWB ASSY
	84P48D01	DEF PWB ASSY
	84P48M01	CPU PWB ASSY
	84P48S01	SDP PWB ASSY

*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***

SYMBOL	PART NO	DESCRIPTION
HS2	31709105	SHEET,HEAT SINK
HS1	31709204	SHEET,HEAT SINK
HS582	31709503	SHEET,INSULATOR
HS581	31709507	SHEET,INSULATOR HEAT SINK
HS3	31709612	SHEET INSULATOR M-45
HS5A4	31709614	SHEET,INSULATOR M-45
SG901 SG902 SG903 SG904	329J0047	ARRESTER (300V),AT52
X801	64098031	X'TAL 12000KHZ
F651	66653017	FUSE 125V 4A-UC
F601	66653052	FUSE MF51NM125V6.3A-UC

SYMBOL	PART NO	DESCRIPTION
SG951	667K7001	SPARK GAP 1.2KV
SG905	66706002	SPARK GAP 1.5KV
	70032054	SG/CRT SOCKET(DBF)
CORD	70810757	LINE CORD 3P L=1.8
	71205037	HOLDER,FUSE
CALBE	73893105	CABLE,SIGNAL D15P-MD15P
	74004891	CAP
	79692942	FG-ACC-P
	79693511	PANEL BNC/D-SUB W
	79693732	FG-DPI/ACC-M

*** APPEARANCE PARTS ***

SYMBOL	PART NO	DESCRIPTION
	25282981	SCREW RIVET
	25313931	CABINET BACK(A)ASSY
	25313951	CABINET BACK (B) ASSY
	25313973	CABINET BOTTOM
	25317831	CABINET FRONT ASSY
	25419341	HOOK (B)
	25419371	ESCUTCHEON
	25419382	REVOLVING STAND ASSY
	25419402	REVOLVING SPINDLE
	25419571	BRACKET(BACK-B)
	25425621	LID,CONTROL
	25534631	COIL SPRING
	25613361	FOOT,RUBBER
	25757643	LABEL(REV.)
	25850521	RIVET,PUSH

*** KNOBS & PUSH BUTTONS ***

SYMBOL	PART NO	DESCRIPTION
	25454691	KNOB,SLIDE
	25454741	PUSH BUTTON (SW)
	25454752	KNOB,CONTROL

*** PRINTED & PACKING MATERIALS ***

SYMBOL	PART NO	DESCRIPTION
	24813191	BAG,POLYETHYLENE(150*370)
	24814531	BAG,POLYEHYLENE (180*350)
	25815061	BAG,POLYETHYLENE (270X370
	25822831	SHEET PROTECTION
	25826651	PARTITION(185*270)
	25827432	FILLER T,CARTON
	25827442	FILLER B,CARTON
	25829702	CARTON BOX(JC-1741UMA-3)
	78034408	MONITOR SALES OFFICE LIST
	78128462	USER'S MANUAL (5/6FGP)A
	78652202	TEMPLATE A

*** RESISTORS ***

SYMBOL	PART NO	DESCRIPTION
R406	401C6609	R,CARBON 2.2H 5% 1/4W
R583 R584	401C6651	R,CARBON 120H 5% 1/4W
R668	401C6657	R,CARBON 220H 5% 1/4W
R667 R834	401C6665	R,CARBON 470H 5% 1/4W
R124	401C6667	R,CARBON 560H 5% 1/4W
R5R6	401C6669	R,CARBON 680H 5% 1/4W
R578	401C6677	R,CARBON 1.5K 5% 1/4W
R5H1 R911	401C6689	R,CARBON 4.7K 5% 1/4W
⚠R5E8	401C6691	R,CARBON 5.6K 5% 1/4W
⚠R5AA ⚠R5AC	401C6745	R,CARBON 1.0M 5% 1/4W
R8C4	401C6761	R,CARBON 4.7M 5% 1/4W
R5GA	401G6127	R,CARBON 12H 5% 1/4W
⚠R491	401G6173	R,CARBON 1.0K 5% 1/4W
⚠R5N4	401G6185	R,CARBON 3.3K 5% 1/4W
⚠R5D4	401G6191	R,CARBON 5.6K 5% 1/4W
⚠R5A9	401G8137	R,CARBON 33H 5% 1/2W
R904 R905 R906	401H5645	R,CARBON 68H 5% 1/2W
R790 R791 R792	401H5657	R,CARBON 220H 5% 1/2W
R725 R726 R727	401H5661	R,CARBON 330H 5% 1/2W
R619	401H5667	R,CARBON 560H 5% 1/2W
R985	401H5677	R,CARBON 1.5K 5% 1/2W
R8A4	401H5681	R,CARBON 2.2K 5% 1/2W
R8A1	401H5683	R,CARBON 2.7K 5% 1/2W
R655	401H5705	R,CARBON 22K 5% 1/2W
R601	401H5729	R,CARBON 220K 5% 1/2W
R974 R975	401H5731	R,CARBON 270K 5% 1/2W
R603	401H5737	R,CARBON 470K 5% 1/2W
⚠R5N5	401H5741	R,CARBON 680K 5% 1/2W
⚠R5E7 R524 R7F4	401J9820	R,CARBON 0.0H
R7F5 R8F9		
R50F R51C R54F	401K5601	R,CARBON 1H 5% 1/6W
R56X		
R5K6 R909	401K5633	R,CARBON 22H 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
R7C0 R7C1 R7C2	401K5639	R,CARBON 39H 5% 1/6W
R5N2	401K5641	R,CARBON 47H 5% 1/6W
R8D0	401K5643	R,CARBON 56H 5% 1/6W
R970	401K5647	R,CARBON 82H 5% 1/6W
⚠R2011 R408 R57E	401K5649	R,CARBON 100H 5% 1/6W
R59A R59C R59E		
R59F R59G R59W		
R662 R7A0 R7A1		
R7A2 R7G1 R750		
R751 R752 R910		
R966		
R719 R720 R721	401K5653	R,CARBON 150H 5% 1/6W
R722 R723 R724		
R760 R761 R762		
R110 R784 R785	401K5655	R,CARBON 180H 5% 1/6W
R786 R8E7		
R56S R615 R8F4	401K5657	R,CARBON 220H 5% 1/6W
R2102 R513 R802	401K5659	R,CARBON 270H 5% 1/6W
R56M R58C R7G0	401K5661	R,CARBON 330H 5% 1/6W
R7A3 R7A5 R7A7	401K5663	R,CARBON 390H 5% 1/6W
R781 R782 R783	401K5665	R,CARBON 470H 5% 1/6W
R8C6		
R596 R598 R8L3	401K5667	R,CARBON 560H 5% 1/6W
R121 R672 R756	401K5669	R,CARBON 680H 5% 1/6W
R757 R758 R8E6		
R8H0		
R775 R777 R779	401K5671	R,CARBON 820H 5% 1/6W
R1003 R111 R409	401K5673	R,CARBON 1.0K 5% 1/6W
R454 R455 R5A8		
⚠R5EA ⚠R5E4 ⚠R5E5		
R5W4 R5W5 R516		
R53L R535 R605		
R674 R738 R787		
R788 R789 R8K8		
R8K9 R810 R811		
R832 R857 R858		
R859 R86A R86C		
R871 R873 R877		
R878 R879 R880		
R882 R956 R957		
R511 R659 R8H6	401K5675	R,CARBON 1.2K 5% 1/6W
R8H8		
R474 R5A7 R5D3	401K5677	R,CARBON 1.5K 5% 1/6W
R528 R657 R658		
R8G9 R8H2		
R5R5 R793 R971	401K5679	R,CARBON 1.8K 5% 1/6W
R1011 R407 R466	401K5681	R,CARBON 2.2K 5% 1/6W
R57K R7G2 R7G3		
R731 R732 R735		
R736 R737 R739		
R8C1 R8C2 R816		
R983		
R5A0 R5A4 R5A5	401K5683	R,CARBON 2.7K 5% 1/6W
⚠R5E0 R5U7 R8H7		
R801 R870 R876		
⚠R201G R411 R5X6	401K5685	R,CARBON 3.3K 5% 1/6W
R52F R59L R59S		
R59T R590 R595		
R597 R707 R709		
R711 R713 R715		
R717 R776 R778		
R780 R8G4 R8G5		
R8G6 R8G7 R8G8		
R8H1 R8H9 R8L0		
R8L1 R863 R872		
R965		
R463 R5K5 R5N0	401K5687	R,CARBON 3.9K 5% 1/6W
R50K R51K R52K		
R53K R54K R55K		
R58K R7A4 R7A6		
R7A8 R7G4 R8E0		
R8H5		
R1021 ⚠R201M R401	401K5689	R,CARBON 4.7K 5% 1/6W
R462 R5R4 R533		
R663 R763 R8K4		
R8K5 R866		
⚠R2006 R465 R5D2	401K5691	R,CARBON 5.6K 5% 1/6W
⚠R5E1 ⚠R5E9 R5Y4		
R520 R7C4 R7C6		
R7C8 R8E1 R8G0		
R8G2 R8K0 R8K1		
R8K2		
R120 ⚠R201H R5G1	401K5693	R,CARBON 6.8K 5% 1/6W
R5G5 R5K7 R5M0		

SYMBOL	PART NO	DESCRIPTION
R5N1 R5T6 R514	401K5693	R,CARBON 6.8K 5% 1/6W
R745 R8H4 R803		
R818		
R5H4 R7E2 R7E3	401K5695	R,CARBON 8.2K 5% 1/6W
R7E4 R8A9 R862		
R864 R869		
R1002 ⚠R2007 ⚠R201K	401K5697	R,CARBON 10K 5% 1/6W
⚠R2010 ⚠R2020 R403		
R464 R475 R5G2		
R5M8 R5S3 R5S4		
R5T1 R5T2 R5T4		
R5U0 R5U2 R5U3		
R5X1 R5X4 R5Y3		
R50M R504 R505		
R515 R526 R527		
R529 R53S R544		
R569 R652 R7E5		
R7E6 R7E7 R7F0		
R7F1 R7F2 R7F3		
R708 R710 R712		
R714 R716 R718		
R742 R744 R764		
R765 R766 R767		
R768 R769 R772		
R773 R774 R8A2		
R8A3 R8C0 R8C7		
R8F8 R805 R807		
R808 R809 R850		
R851 R852 R867		
R868 R874 R884		
R907 R913 R951		
R952 R979 R982		
R984 R987		
⚠R2013 R420 ⚠R5E2	401K5699	R,CARBON 12K 5% 1/6W
R5G4 R5R0 R5R7		
R512 R523 R59N		
R741 R743 R886		
R964		
R2104 R402 R421	401K5701	R,CARBON 15K 5% 1/6W
R5H0 R614 R670		
R8A5 R8A6 R8K3		
R817		
R5X7	401K5703	R,CARBON 18K 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
⚠R201L R404 R445	401K5705	R,CARBON 22K 5% 1/6W
R5H5 R5M2 R5T7		
R5U9 R5W9 R522		
R613 R660 R730		
R734 R8A8 R8C3		
R8K6 R976 R978		
R424 R451 R5T3	401K5707'	R,CARBON 27K 5% 1/6W
R5U6 R5Y6 R50T		
R52T R53T R54T		
R55T R58T R981		
R989		
⚠R2012 R2101 R423	401K5709	R,CARBON 33K 5% 1/6W
R5C4 R5D5 R5H8		
R5M6 ⚠R503 R509		
R531 R532 R534		
R568 R7D9 R7E0		
R7E1 R853 R854		
R855 R856 R885		
R955 R962		
R1001 ⚠R200A ⚠R200C	401K5711	R,CARBON 39K 5% 1/6W
⚠R201E R422 R482		
R837		
⚠R2009 R443 R5A3	401K5713	R,CARBON 47K 5% 1/6W
R5H2 R5H3 R5S8		
R5T0 R669 R7C3		
R7C5 R7C7 R806		
R914 R954 R980		
⚠R200F R436 R437	401K5715	R,CARBON 56K 5% 1/6W
R483 R5M7 R56G		
R56H R8F2 R958		
R960		
R450 R5Y5 ⚠R502	401K5717	R,CARBON 68K 5% 1/6W
R671		
R5H7 R5T8 R56T	401K5719	R,CARBON 82K 5% 1/6W
R59M R7D6 R7D7		
R7D8 R835		
⚠R2008 ⚠R201F R431	401K5721	R,CARBON 100K 5% 1/6W
R433 R434 R435		
R452 R453 R5G7		
R5S7 R5S9 R5U1		
R5U8 R5W2 R5W3		
R5X5 R56C R58H		

SYMBOL	PART NO	DESCRIPTION
R620 R8H3 R961	401K5721	R,CARBON 100K 5% 1/6W
R986		
R484 R5K3 R5M3	401K5723	R,CARBON 120K 5% 1/6W
R56A R56F R953		
R5S6 R56E R7D3	401K5725	R,CARBON 150K 5% 1/6W
R7D4 R7D5		
R50H R50L R8A7	401K5727	R,CARBON 180K 5% 1/6W
R5G8 R5W0 R7D0	401K5729	R,CARBON 220K 5% 1/6W
R7D1 R7D2 R8G1		
R8G3 R8K7		
R56W R836	401K5731	R,CARBON 270K 5% 1/6W
R5N7 R7F6 R7F7	401K5733	R,CARBON 330K 5% 1/6W
R7F8		
R438 R51H	401K5735	R,CARBON 390K 5% 1/6W
R5G3 R52H R912	401K5737	R,CARBON 470K 5% 1/6W
R959		
R53H R8C5	401K5743	R,CARBON 820K 5% 1/6W
R5G9 R5M5 R54H	401K5745	R,CARBON 1.0M 5% 1/6W
R8C8		
R55H	401K5747	R,CARBON 1.2M 5% 1/6W
R492 R908	401K5749	R,CARBON 1.5M 5% 1/6W
⚠R201D ⚠R210C R440	401K5753	R,CARBON 2.2M 5% 1/6W
R501	401K5757	R,CARBON 3.3M 5% 1/6W
⚠R5C1 ⚠R5C2	40175125	R,CARBON 10H 5% 1/4W
⚠R5M1	40175127	R,CARBON 12H 5% 1/4W
R611	40175145	R,CARBON 68H 5% 1/4W
R581 R582	40298004	R,WIRE 1.0H 1% 5W
R602	40299104	R,WIRE 10H 5% 5W
R8F6	403F1125	R,METAL OXIDE 10H 5% 1W
R8F7	403F1135	R,METAL OXIDE 27H 5% 1W
⚠R57T	403F1137	R,METAL 33H 5% 1W
R405	403F1165	R,METAL 470H 5% 1W
R5A6 ⚠R5E3	403F1173	R,METAL OXIED 1.0K 5% 1W
R5A1	403F1177	R,METAL OXIDE 1.5K 5% 1W
R410	403F2101	R,METAL 1.0H 5% 2W
R8F0	403F2103	R,METAL OXIDE 1.2H 5% 2W
R8F3	403F2109	R,METAL 2.2H 5% 2W
R8F5	403F2117	R,METAL OXIDE 4.7H 5% 2W
R883	403F2149	R,METAL OXIDE 100H 5% 2W
R7G5 R8E4 R8E5	403F2151	R,METAL OXIDE 120H 5% 2W

SYMBOL	PART NO	DESCRIPTION
R476 R477	403F2169	R,METAL OXIDE 680H 5% 2W
R519	403F2171	R,METAL 820H 5% 2W
R8F1	403F3137	R,METAL OXIDE 33H 5% 3W
R456 R457 R599	403F3141	R,METAL OXIDE 47H 5% 3W
R861	403F3159	R,METAL OXIDE 270H 5% 3W
R521	403F3163	R,METAL OXIDE 390H 5% 3W
⚠R5D6	403F3173	R,METAL OXIDE 1.0K 5% 3W
⚠R57V	403F3177	R,METAL OXIDE 1.5K 5% 3W
R967 R968	403F3209	R,METAL OXIDE 33K 5% 3W
R5D7	40318994	R,METAL 2.2K 5% 5W
R5G6	40371105	R,METAL 1.5H 5% 1W
R656	40372135	R,METAL 27H 5% 2W
R604	40372151	R,METAL 120H 5% 2W
R666	40372175	R,METAL 1.2K 5% 2W
R607	40372191	R,METAL 5.6K 5% 2W
R665	40372197	R,METAL 10K 5% 2W
R664	40372203	R,METAL 18K 5% 2W
R606	40372213	R,METAL 47K 5% 2W
R608 R609	40372329	R,METAL 0.22H 5% 2W
R651 R654	40373135	R,METAL 27H 5% 3W
R610	40373149	R,METAL 100H 5% 3W
R616 R617	40373209	R,METAL 33K 5% 3W
R8E8	40399049	R,METAL 82H 5% 3W
R701 R702 R703	404C1646	R,METAL 75H 1% 1/6W
R704 R705 R706		
R795 R796 R797	404C1653	R,METAL 150H 1% 1/6W
R50C	404C1675	R,METAL 1.2K 1% 1/6W
⚠R2018	404C1677	R,METAL 1.5K 1% 1/6W
R58F	404C1681	R,METAL 2.2K 1% 1/6W
R122 R537 R661	404C1683	R,METAL 2.7K 1% 1/6W
R5A2	404C1685	R,METAL 3.3K 1% 1/6W
R51F R58A R653	404C1689	R,METAL 4.7K 1% 1/6W
R123	404C1691	R,METAL 5.6K 1% 1/6W
R52C	404C1695	R,METAL 8.2K 1% 1/6W
⚠R2019 R5X0 R50A	404C1697	R,METAL 10K 1% 1/6W
R56R R729 R8E2		
R8E3 R840 R843		
R846 R849		
R472 R53C R58G	404C1699	R,METAL 12K 1% 1/6W
R5F4 R5S5 R50G	404C1703	R,METAL 18K 1% 1/6W

SYMBOL	PART NO	DESCRIPTION
R536 R576 R579	404C1703	R,METAL 18K 1% 1/6W
R51G R53F R538	404C1705	R,METAL 22K 1% 1/6W
R573 R577		
R447 R51A R54C	404C1707	R,METAL 27K 1% 1/6W
R52G R55C	404C1709	R,METAL 33K 1% 1/6W
R5U4 R5U5	404C1710	R,METAL 36K 1% 1/6W
R425 R52A R53G	404C1711	R,METAL 39K 1% 1/6W
R55F		
R429 R471 R5S0	404C1713	R,METAL 47K 1% 1/6W
R5X2 R5X3 R56L	404C1715	R,METAL 56K 1% 1/6W
R572		
R426 R510 R57A	404C1717	R,METAL 68K 1% 1/6W
R473	404C1719	R,METAL 82K 1% 1/6W
⚠R2001 R430 R442	404C1721	R,METAL 100K 1% 1/6W
R5F3 R5F8 R5S1		
R5S2 R5X9 R5Y1		
R5Y2 R50E ⚠R507		
R51E R52E R53A		
R53E R54E R54G		
R55E R56K R58E		
R838 R841 R844		
R847		
R446 R55G R574	404C1723	R,METAL 120K 1% 1/6W
R839 R842 R845	404C1724	R,METAL 130K 1% 1/6W
R848		
R428 R5N9 R54A	404C1725	R,METAL 150K 1% 1/6W
R5X8 R508	404C1727	R,METAL 180K 1% 1/6W
R506 R55A R571	404C1729	R,METAL 220K 1% 1/6W
R575		
R427	404C1731	R,METAL 270K 1% 1/6W
R441	404C1739	R,METAL 560K 1% 1/6W
R444	404C1743	R,METAL 820K 1% 1/6W
R439	404C1745	R,METAL 1.0M 1% 1/6W
⚠R5C3 ⚠R5D1 ⚠R5F9	404K5109	R,METAL 2.2H 5% 1/4W
⚠R57H ⚠R570		
R461 ⚠R591	404K5117	R,METAL 4.7H 5% 1/4W
⚠R481 R5F2 ⚠R860	404K5125	R,METAL 10H 5% 1/4W
⚠R5F0 ⚠R57F ⚠R57L	404K5141	R,METAL 47H 5% 1/4W
⚠R5R8	40405125	R,METAL 10H 5% 1/4W
⚠R5N3	408A8109	R,FUSE 2.2H 5% 1/2W
⚠R592 ⚠R593 ⚠R594	408A8157	R,FUSE 220H 5% 1/2W

SYMBOL	PART NO	DESCRIPTION
⚠R57G	409A6149	R,FUSE 100H 5% 1/4W

*** CAPACITORS ***

SYMBOL	PART NO	DESCRIPTION
C903	420C9551	C,CERAMIC 500V 100PF
C481 C5G8 ⚠C591	420C9563	C,CERAMIC 500V 1000PF
⚠C592 ⚠C593 C7A6		
C7A7 C7A8 C904		
C574	420C9567	C,CERAMIC 500V 2200PF
C7E9 C796 C797	420C9569	C,CERAMIC 50V 3300PF
C798		
C609	420EC067	C,CERAMIC 400V 2200PF
C901	4203J575	C,CERAMIC 500V 0.01UF
C905	42040108	C,CERAMIC 2KV 0.01UF
C603 C604	42053013	C,CERAMIC 400V 1000PF
C658	42099086	C,CERAMIC 2KV 1000PF
C611 C618	42099088	C,CERAMIC 2KV 220PF
C651 C655	42099095	C,CERAMIC 2KV 330PF
C607 C614	42099096	C,CERAMIC 2KV 470PF
C451 C518 C521	421A0425	C,CERAMIC 50V 0.01UF
C530 C57A C810		
C811		
C86A C86C	421CC461	C,CERAMIC 16V 0.01UF
C5R1	421C0205	C,CERAMIC 50V 220PF
C401 C762 C763	421C0213	C,CERAMIC 50V 1000PF
C764 C777 C778		
C779 C8A9 C867		
C737 C738 C739	421C0219	C,CERAMIC 50V 3300PF
C5G1 C7D4 C7D5	421C0225	C,CERAMIC 50V 0.01UF
C7D6 C707 C708		
C709 C710 C711		
C712 C718 C719		
C720 C759 C760		
C761 C768 C769		
C770 C784 C785		
C786 C790 C791		
C792		
C86A C86C	421C3461	C,CERAMIC 16V 0.01UF
C5S1 C5S8 C5S9	421D6009	C,CERAMIC 25V 0.1UF
C5T0 C5T1 C5T2		
C5X0 C504 C59E		
C59F C59G C59H		

SYMBOL	PART NO	DESCRIPTION
C59K C59M C7E5	421D6009	C,CERAMIC 25V 0.1UF
C7E6 C7E7 C7E8		
C7F0 C7F1 C7F2		
C714 C716 C753		
C754 C755 C8A8		
C8H7 C8K3 C8K4		
C8K7 C8K8 C8K9		
C802 C826 C827		
C829 C830 C834		
C835 C864 C865		
C868 C869 C870		
C958 C965		
C200P C2021 C406	421D6013	C,CERAMIC 50V 0.1UF
C47P C471 C5A5		
C5EP C50A C50R		
C50S C507 C51C		
C51P C56A C56C		
C57P C8C7 C8C8		
C5X1	421J9036	C,CERAMIC 25V 0.1UF
C8A1	423A1028	C,CERAMIC 50V 20PF
C509 C717	423A1045	C,CERAMIC 50V 100PF
C5G3 C8G9 C8K0	423A1057	C,CERAMIC 50V 330PF
C8K1 C8K2		
C616	423A1100	C,CERAMIC 50V 390PF
C5G5 C5M0 C8K5	423A1101	C,CERAMIC 50V 470PF
C962		
C959	423A1103	C,CERAMIC 50V 560PF
C5EE C7D1 C7D2	423A2015	C,CERAMIC 50V 10PF
C7D3 C804 C805		
C820	423A2025	C,CERAMIC 50V 15PF
C5G0 C506	423A2033	C,CERAMIC 50V 33PF
C787 C788 C789	423A2035	C,CERAMIC 50V 39PF
⚠C5E2	423A2037	C,CERAMIC 50V 47PF
C781 C782 C783	423A2041	C,CERAMIC 50V 68PF
C529 C549 C966	423A2045	C,CERAMIC 50V 100PF
C5M5 C502 C510	423A2103	C,CERAMIC 50V 180PF
C511	423A2105	C,CERAMIC 50V 270PF
C515	427A7005	C,FILM 100V 0.0022UF
C8A6	427F4004	C,FILM 50V 1800PF
C8A7 C8H0	427F4009	C,FILM 50V 4700PF
C8A5 C951 C957	427F4013	C,FILM 50V 0.01UF

SYMBOL	PART NO	DESCRIPTION
C5G2	427F4601	C,FILM 50V 1000PF
C513	427F4603	C,FILM 50V 1500PF
C8D0	427F4605	C,FILM 50V 2200PF
C520	427F4610	C,FILM 50V 5600PF
C412	427F4611	C,FILM 50V 6800PF
C5EA ⚠C5E6 C500	427F4613	C,FILM 50V 0.01UF
C59N		
C516	427F4614	C,FILM 50V 0.012UF
C5G6 C5H7 C5H8	427F4621	C,FILM 50V 0.047UF
C5M4 C5M8		
C661	427F4624	C,FILM 50V 0.082UF
C5M2	427F4625	C,FILM 50V 0.1UF
C512 C578	427F4651	C,FILM 50V 1000PF
⚠C5D2	427F4659	C,FILM 50V 4700PF
C955 C956 C963	427F4675	C,FILM 50V 0.1UF
C5A2 C5A3	427J9112	C,FILM 50V 1000PF
⚠C5D1	42703455	C,FILM 630V 2200PF
⚠C577	42703575	C,FILM 200V 0.1UF
C664	42799057	C,FILM 100V 3300PF
C441 C442 C606	428B3013	C,METAL FILM 50V 0.1UF
C662 C8G0 C8G2		
C402 ⚠C5D3	428B3021	C,METAL FILM 50V 0.47UF
C50C C8A2 C8D1	428B3025	C,METAL FILM 50V 1.0UF
C613	428B3101	C,METAL FILM 50V 0.010UF
⚠C5E8 C5GE	428CJ022	C,METAL FILM 250V 0.1UF
C666 C667	428D0053	C,METAL 100V 0.1UF
C7A0 C7A1 C7A2	428D0097	C,FILM 250V 0.22UF
C907		
C409	428D4317	C,METAL FILM 100V 0.22UF
⚠C5A8 C964	428JJ115	C,METAL 1000V 0.047UF
C960	42808501	C,METAL FILM 1.6KV 1000PF
C654	42809001	C,METAL FILM 100V 0.01UF
⚠C581	42817101	C,METAL 1600V 1500PF
⚠C5A6	42817102	C,METAL FILM 2.0KV 1900PF
⚠C582	42817201	C,METAL 1600V 6200PF
C610	42839022	C,METAL FILM 250V 0.1UF
⚠C599	42839601	C,METAL 400V 0.1UF
⚠C59A	42839602	C,METAL 400V 0.12UF
⚠C598	42839606	C,METAL 400V 0.24UF
⚠C597	42839615	C,METAL 400V 0.68UF 5%

SYMBOL	PART NO	DESCRIPTION
⚠C595 ⚠C596	42839631	C,METAL FILM 400V 0.6UF
⚠C59C	42839708	C,METAL 400V 0.33UF 5%
C601	42898001	C,FILM AC250V 0.22UF
C602 C619	42899098	C,FILM 250V 0.1UF
C7C6	430BJ518	C,ELEC 160V 33UF
C771 C772 C773	430B3104	C,ELEC 50V 3.3UF
C1001	430B6016	C,ELEC 10V 100UF
C801	430B6017	C,ELEC 10V 220UF
⚠C2004 ⚠C2006 C733	430B6029	C,ELEC 16V 100UF
C734 C735 C969		
C5S6 C5S7 C508	430B6030	C,ELEC 16V 220UF
C724 C725 C726	430B6032	C,ELEC 16V 470UF
C736		
C5G9	430B6039	C,ELEC 25V 22UF
⚠C2002 C472 C5A1	430B6041	C,ELEC 25V 47UF
C5S4 C5S5 C5X2		
C57C C722 C741		
C780 C8H8		
C461	430B6054	C,ELEC 35V 100UF
C8L0	430B6060	C,ELEC 50V 0.47UF
C517 C8H9	430B6061	C,ELEC 50V 1.0UF
C8H3	430B6062	C,ELEC 50V 2.2UF
C5S2	430B6063	C,ELEC 50V 3.3UF
C5H0 C5H1 C5X3	430B6064	C,ELEC 50V 4.7UF
C501 C8G8 C8H2		
C8H6		
C462 ⚠C5E0 C5H2	430B6065	C,ELEC 50V 10UF
C5M7 C7E0 C7E1		
C7E2 C727 C728		
C729 C730 C731		
C732 C756 C757		
C758 C8G4 C8H5		
C8K6 C871		
⚠C2008 C5C0 C5GC	430B6066	C,ELEC 50V 22UF
C572		
⚠C5E9	430B6068	C,ELEC 50V 47UF
C571	430B6069	C,ELEC 50V 100UF
C590	430B6096	C,ELEC 100V 3.3UF
C482	430B6536	C,ELEC 200V 10UF
C833	430B8135	C,ELEC 10V 220UF
C713 C715	430B8144	C,ELEC 16V 47UF

SYMBOL	PART NO	DESCRIPTION
C803	430B8152	C,ELEC 25V 10UF
⚠C5GA	430B8180	C,ELEC 50V 22UF
C863	430B9016	C,ELEC 10V 100UF
C503 C8C9 C831	430B9017	C,ELEC 10V 220UF
C861 C967 C968	430B9025	C,ELEC 16V 10UF
C765 C766 C767	430B9026	C,ELEC 16V 22UF
C952 C953 C961	430B9028	C,ELEC 16V 47UF
C8C3	430B9031	C,ELEC 16V 330UF
C750 C751 C752	430B9032	C,ELEC 16V 470UF
⚠C5E7	430B9039	C,ELEC 25V 22UF
C5A4 C862	430B9041	C,ELEC 25V 47UF
C665	430B9053	C,ELEC 35V 47UF
C411	430B9054	C,ELEC 35V 100UF
C660	430B9057	C,ELEC 35V 470UF
C408	430B9061	C,ELEC 50V 1.0UF
⚠C5E3 C612	430B9065	C,ELEC 50V 10UF
C2101 ⚠C5E4 C5G4	430B9066	C,ELEC 50V 22UF
C5M1		
C615	430B9069	C,ELEC 50V 100UF
C407	430B9070	C,ELEC 50V 220UF
C405	430B9071	C,ELEC 50V 330UF
C7A3 C7A4 C7A5	430B9512	C,ELEC 160V 1.0UF
C793 C794 C795	430B9513	C,ELEC 160V 2.2UF
C5G7 ⚠C59L C7D7	430B9552	C,ELEC 250V 1.0UF
C832	430C0253	C,ELEC 25V 22UF
C8C1 C8C2	430C2105	C,ELEC 25V 470UF
⚠C5F1	430C6635	C,ELEC 160V 33UF
C774 C775 C776	430C8423	C,ELEC 16V 470UF
C491	430C9154	C,ELEC 350V 3.3UF
C8C5	430J8109	C,ELEC 16V 47UF
C659 C663	4302J059	C,ELEC 35V 2200UF
C653	4302J559	C,ELEC 250V 47UF
C410	4303D183	C,ELEC 50V 1000UF
C5A9 C5M6 C5M9	4303J222	C,ELEC 250V 2.2UF
C5H6	4303J224	C,ELEC 250V 4.7UF
C8A3 C8A4	43032175	C,ELEC 50V 220UF
C656 C657 C669	4304A013	C,ELEC 160V 100UF
C5H9	4309H105	C,ELEC 200V 4.7UF
⚠C5E5	4309H106	C,ELEC 250V 22UF

SYMBOL	PART NO	DESCRIPTION
C652	43099174	C,ELEC 100V(HV) 470UF
C605	43198001	C,ELEC 200V 1200UF
C583	43198002	C,ELEC 200V 47UF
C8C4	432K6011	C,ELEC 10V 220UF
C8F0	432K6208	C,ELEC 63V 33UF
C8H4	433A3058	C,ELEC 50V 4.7UF
⚠C5MC	433A4025	C,ELEC 16V 47UF
C5S3	433A4033	C,ELEC 25V 10UF
C8G1 C8G3 C8H1	433A4056	C,ELEC 50V 2.2UF
C7C0 C7C1 C7C2	433A6045	C,ELEC 16V 22UF
C7C3 C7C4 C7C5		
C701 C702 C703		
C704 C705 C706		
C5EC	433A7013	C,ELEC 16V 47UF
C866	433A7031	C,ELEC 35V 4.7UF
C514	435A8307	C,TANTALUM 35V 1.0UF

REPLACEMENT PARTS LIST

The components specified Model JC-1741UMB-3

Note: The components identified by ⚠ make are critical for safety.
Replace only with parts Number specified.

*** CRT & TUNER ***

SYMBOL	PART NO	DESCRIPTION
⚠CRT	33017512	CRT AF17G9SLB22-K-TC06

*** ICS ***

SYMBOL	PART NO	DESCRIPTION
⚠IC5E1	370A1009	IC UPC1093J-T (REG)
IC503 IC8G0 IC8G2	37011018	IC UPC311C (COMP)
IC402 IC5G1	37011024	IC UPC3403C (OP-AMP)
⚠IC2001 ⚠IC2002	37011132	IC UPC4082C (OP-AMP)
IC471 IC5S2 IC506	37011206	IC XRA10358 (OP-AMP)
IC509 IC809 IC810		
IC863 IC951		
IC862 IC864	37011210	IC XRA10324 (Q OP-AMP)
⚠IC5E2 IC5G0 IC8A2	37011262	IC XRA10393 (COMP)
IC8G1		
IC431 IC505	37051036	MOS UPD4066BC
IC803	37051042	MOS UPD4028BC (BCD DECI)
IC8G5	37051096	IC SN74LS367AN (BUFF)
IC502 IC8G4	37051179	IC SN74LS123N (MONO MLT)
IC805	37053036	MOS SN74HC32N (OR)
IC5A1	37053390	MOS HD74HC123AP
IC804	37055401	MOS XRM93C56B-E
⚠IC501	37056295	IC LA7851
IC702 IC703 IC704	37056433	IC M51399P
IC5S1 IC952	37056618	IC BA6110
IC601	37056810	IC M67297 (SW.REG CONT)
IC860 IC861	37056812	IC M62362P
IC802	37056813	IC M62359P
IC8G3	37056867	IC M52036SP
IC5S5	37056877	IC NJM4200D (MULTIPLIER)
IC571 IC8A1	37056885	IC NJM3404AD
IC401	37056887	IC TDA1675A
IC705 IC706 IC707	37056905	IC VPA12H
IC5S3 IC5S4 IC504	37056917	IC XRA10324A (Q OP-AMP)
IC806 IC807 IC808		
IC701	37056974	IC M52310P
IC801	37076116	MOS UPD78C14G-J13-36
IC811	371E1514	IC PST529D-2(T)(VOLTAGE D
IC510 IC511	37101543	IC XRA10339

*** TRANSISTORS ***

SYMBOL	PART NO	DESCRIPTION
⚠Q5M4	350A1500	TR 2SA1767-TA
Q1001 Q1006 ⚠Q2002	350E3218	TR 2SC1740S-T R
Q421 Q462 Q5G2		
Q5G4 Q5M1 Q5R3		
Q572 Q652 Q653		
Q714 Q715 Q716		
Q8A2 Q8A4 Q8A6		
Q8A8 Q807 Q861		
Q862 Q952 Q957		
Q740 Q741 Q742	350H4417	TR,2SC1473-TA Q
Q701 Q702 Q703	350H4808	TR 2SC2901K-T(FT=400MHZ)
Q704 Q705 Q706		
Q710 Q726 Q727		
Q728 Q731 Q733		
Q7C0	350H5017	TR,2SC3811-TA Q
Q5A1 Q5R2 Q502	350H5018	TR,2SC3811-TA R
Q806		
Q954	350K4311	TR 2SA953-T K
⚠Q5E2	350K4411	TR 2SA952 K,AT
Q5A3	350K4412	TR 2SA952 L,AT
⚠Q2001 Q5G5 Q5M2	350K4518	TR 2SA933-T R
Q5R4 Q501 Q56E		
Q573		
Q743 Q744 Q745	350K5217	TR,2SA1018-TA Q
Q5G1 Q5G3 Q5M0	350K5718	TR 2SA933S-T R
Q5S1 Q711 Q712		
Q713 Q8A3 Q8A7		
Q863 Q864 Q951		
Q732	350K7500	TR 2SA1206-T
Q956	35011600	TR 2SA1831
Q451	35025211	TR 2SB546 K
Q571	35025212	TR 2SB546 L
Q5A2 ⚠Q5E1	35050918	TR 2SC1384 R
Q651	35053012	TR 2SC1941 L
Q481	35056312	TR 2SC2688 L
Q482	35058905	TR,2SC1841 E
Q452	35063411	TR,2SD401A K
Q461 Q471 Q8A1	35065416	TR,2SD882 P
Q8C0		
Q723 Q724 Q725	35080200	TR 2SC2407/2407A

SYMBOL	PART NO	DESCRIPTION
Q958	35084600	TR,2SC3675
Q953 Q955	35094200	TR 2SC4572
⚠Q581	35094300	TR 2SC3998
Q422 Q423 Q424	351A0690	TR DTC115ES-TP
Q425		
⚠Q5E4	351G0553	TR DTA143ES-T
Q56A Q56C Q59A	351G0560	TR DTA144WS-T
Q59E		
Q1003	351G0561	TR DTA144ES-T
Q708 Q8G0 Q8G1	351G0600	TR DTA114ES-T
⚠Q2005 ⚠Q2006 Q5G0	351G0601	TR DTC114ES-T
Q5R0 Q707 Q709		
Q719 Q734 Q8A5		
Q8G2 Q8G4 Q802		
Q803 Q804 Q805		
⚠Q5E0 Q50A Q51A	351G0602	TR DTC144ES-T
Q52A Q53A Q54A		
Q55A Q58A Q59C		
Q59F Q717 Q718		
Q8G3		
Q801	351G0641	TR DTC114YS-T
Q654	351G0653	TR DTC123ES-T
Q2101 Q5R1	351G0655	TR DTC143ES-TP
Q1005	351G0656	TR DTC143XS-T
Q1002 Q1004	351G0657	TR DTC143ZS-TP
Q5G6 Q5M3 Q574	35122500	TR 2SK758
Q8A9	35122600	TR 2SK701
⚠Q5A4 ⚠Q5A5	35122800	TR 2SK1271
Q601	35125800	TR,2SK1342
⚠Q5E3	35126900	TR 2SK806
Q591 Q592 Q593	35127300	TR 2SK947-M
Q594 Q595 Q596		
Q860	35560416	TR 2SD794A P
CR601	35595015	TRIAC AC10FGM

*** DIODES ***

SYMBOL	PART NO	DESCRIPTION
D605 D606S D607S	360K1010	DIODE,SI.1S2472
D101 D102 D103	360K1027	DIODE 1SS132
D104 D105 D106		
D107 D108 D109		

SYMBOL	PART NO	DESCRIPTION
D110 D111 D112	360K1027	DIODE 1SS132
D113 D114 D115		
D116 D2003 ⚠D2006		
⚠D2008 D2101 D2102		
D2103 D401 D5A0		
D5A1 D5A3 ⚠D5E1		
D5G2 D5G4 D5G5		
D5G6 D5M0 D5M2		
D5M3 D5M4 D5R1		
D501 D502 D591		
D592 D654 D655		
D7G0 D701 D702		
D703 D704 D705		
D706 D707 D708		
D709 D710 D711		
D712 D713 D714		
D715 D716 D717		
D718 D719 D720		
D721 D722 D723		
D725 D726 D727		
D728 D729 D730		
D8A1 D8A2 D8A3		
D8A4 D8A5 D8A6		
D8G0 D8G1 D8G2		
D8G3 D8G4 D8G5		
D8G6 D8G7 D8G8		
D8G9 D8H2 D8H3		
D8H4 D803 D804		
D805 D806 D860		
D861 D862 D863		
D864 D901 D951		
D952 D953 D954		
D482 D491 D755	360K1032	DIODE 1SS82-TA
D756 D757 D758		
D759 D760 D761		
D762 D763 D902		
ZD801	360K3087	DIODE RD3.0EB-T4
⚠ZD5E2	360K3098	DIODE RD12EB(3)-T4
ZD860	360K3114	DIODE 8.2EB(1)
ZD452	360K3118	DIODE RD10EB(1)-T4
ZD653	360K3123	DIODE RD20EB(3)
ZD652	360K3124	DIODE RD8.2EB (3)-T4
ZD471 ZD5A1 ⚠ZD5E1	360K3134	DIODE RD15EB(2)-T4

SYMBOL	PART NO	DESCRIPTION
ZD571	360K3134	DIODE RD15EB(2)-T4
ZD5R1	360K3145	DIODE RD27EB-T4
ZD5A0	360K3157	DIODE RD5.1EB(3)-T4
ZD503	360K3160	DIODE RD8.2EB(2)-T4
ZD5R2	360K3161	DIODE RD12EB(2)-T4
ZD8A3	360K3169	DIODE RD6.2EB(2)-T4
ZD461 ZD561 ZD591 ZD592	360K3170	DIODE RD6.2JSB(2)/JSAB(2)
ZD502	360K3188	DIODE RD3.9EB(2)-T4
ZD711 ZD712 ZD713	360K3300	DIODE RD2.0EB(1)-T4
ZD5A2	360K3326	DIODE RD18EB(3)-T4
ZD501	360K3403	DIODE RD5.1JSB(1)-T4
⚠ZD2001⚠ZD2002	360K3416	DIODE RD5.1JSB(2)-T4
ZD951	360K3605	DIODE RD2.2ESB(1)-T4
ZD5A3	360K3620	DIODE RD3.6ESB(1)
ZD401	360K3623	DIODE RD3.9ESB(1)-T4
ZD5G2	360K3624	DIODE RD3.9ES AB2-T4
ZD8A4	360K3634	DIODE RD5.1ESB(1)-T4
⚠ZD5E0	360K3635	DIODE RD5.1ESB(2)-T4
ZD803	360K3637	DIODE RD5.6ESB
ZD2101	360K3647	DIODE RD6.8ESB(2)-T4
ZD5G0 ZD710 ZD8A1	360K3654	DIODE RD8.2ES AB1-T4
⚠ZD5D1	360K3655	DIODE RD8.2ESB(2)/ESAB(2)
ZD5G3	360K3656	DIODE RD8.2ES AB3-T4
ZD5G1	360K3658	DIODE RD9.1ESB(1)-T4
⚠ZD5E4	360K3675	DIODE RD13ESB(2)-T4
ZD8A2	360K3683	DIODE RD16ESB(2)-T4
ZD651	360K3721	DIODE RD36ESB(3)-T4
D602	361K7303	DIODE EU02 V1
⚠D5A2	361K7312	DIODE EP01C-V
⚠D5E2 ⚠D5E4 ⚠D572 D590 D8A9 D8C0	361K7562	DIODE EGP10G G23
D5M5	361K7637	DIODE EGP20G G23
MD801 MD802	361K8233	DIODE DAN209S-TP
D603	36107174	DIODE RU1P
D656	36107178	DIODE RU3
D573 D574 D8A7	36107293	DIODE RK14
D651 D652	36107320	DIODE FMG-G26S
⚠D5D1 ⚠D5E3	36107541	DIODE EG01A
⚠D583 ⚠D584	36107560	DIODE RG2A2

SYMBOL	PART NO	DESCRIPTION
D5G7	36107638	DIODE EGP30G
D653	36107680	DIODE D5LC20U
D601	36108201	DIODE,NETWORK D5SBA60S
⚠D582	36108238	DIODE FMP-G3FS
ZD802	367K0017	DIODE RD4.7EB-T4
ZD861	367K0048	DIODE RD5.1FB(2)
D120	36801340	LED SLR-34MC3F
D121 D122	36801343	LED SLA-570MT3F(XJ,XK,XL)
D402 D481 D5G3 D5G8 D731 D732 D8C3 D8C4	369K2136	DIODE RGP10G.AT
ZD451	369K5512	DIODE,ZENER RD18JSB2
D604S	36902175	DIODE S3LA20-4004 P15
D5G0 D5G1	380K5054	VARISTOR MA29W-A (TP)
TH601	38112058	THERMISTOR,POSITIVE
PC601 PC602	38200340	IC TLP634(D4-GR-LF2)

*** TRANSFORMERS ***

T571	45804008	TRANS,H.DRIVE
L5M1	46206005	TRANS,CHOKE 4MH
L5G1	46206006	TRANS,CHOKE 2MH
T5G0 T5M0	46302105	TRANS,FERRITE
T8A1	46304111	TRANS,CONVERTER
T601	46311814	TRANS,SWITCHING W345B
⚠T5A1	47105677	F.B.T.(SR)
⚠T581	47710017	TRANS,H.OUTPUT

*** VARIABLE RESISTORS ***

VR701 VR702 VR703	410G1210	R,VARIABLE B3.3K
VR8A1	410G1307	R,VARIABLE B1.0K
VR861	410G1311	R,VARIABLE B4.7K
VR860	410G1313	R,VARIABLE B10K
VR801 VR802	410G1415	R,VARIABLE B22K-T
VR101 VR102	41011106	R,VARIABLE B10K-V
VR411	41087005	R,VARIABLE B1K
VR401 VR421 VR590 VR951	41087009	R,VARIABLE B10K
VR441 VR56A	41087012	R,VARIABLE 50K
VR56C VR56E VR901 VR952	41087014	R,VARIABLE B200

SYMBOL	PART NO	DESCRIPTION
VR431	41087015	R,VARIABLE B300K
VR461	41087056	R,VARIABLE B2K
VR5U1 VR5W1	41087059	R,VARIABLE 10K
VR5S2	41087066	R,VARIABLE B500K
VR720 VR721 VR722 VR723 VR724 VR725	415K5159	R,VARIABLE B20K
VR5D1	41505005	R,VARIABLE B2K
⚠VR2001⚠VR5E1	41505007	R,VARIABLE B5K
VR651	41505103	R,VARIABLE B500

*** RELAYS & SWITCHES ***

SW401	65161048	SWITCH,SLIDE
SW701	65161066	SWITCH,SLIDE 2-6L-2NS(SI)
SW111	65161067	SWITCH,SLIDE 1-6L-2NS V
SW112	65161068	SWITCH,SLIDE 1-6L-3NS V
SW101 SW102 SW103 SW104 SW105 SW106 SW107 SW108 SW109 SW110	653F0031	SWITCH,PUSH BUTTON
	65360029	SWITCH,PUSH BUTTON
RL601	65660019	RELAY G5P-1(24V)
RL590 RL591	65660027	RELAY G6C1117P-US DC24V

*** COILS & FILTERS ***

MR802	390C0151	R,NETWORK 8*10K 5% 1/8W
MR801	390C9804	R,NETWORK
MR803 MR804 MR805 MR806 MR807	390C9805	R,NETWORK 4*1.0K 5% 1/6W
MC801 MC802 MC803 MC804	39013042	C,NETWORK 25V 0.01UF
⚠L591 ⚠L592	60919121	COIL,H.LIN. N-59 (16T)
⚠L590	60919122	COIL,H.LIN. N-60 (10T)
L5S1	610E1717	COIL,FILTER 10UH
L710 L711 L712	610E1726	COIL,FILTER 56UH
L602	610F5002	FERRITE BEADS (B-02-RT)
L720 L721 L722	610F6014	COIL,FILTER 5.6UH
L901 L902 L903	610F7619	COIL,FILTER 0.15UH
L8A5	61055001	COIL,FILTER 8500UH
INLET	61062076	POWER LINE FILTER
FL601 FL602	61062102	FILTER COIL 8.2MH

SYMBOL	PART NO	DESCRIPTION
⚠L5E1 L5G0 L5G2 ⚠L5M0 L8A1 L8A2	61064006	COIL,FILTER 50UH
⚠L594	61070240	FILTER CHOKE 4MH
L601	61072349	COIL,FILTER
L704	61099011	COIL,CHOKE 33UH
L653	61099013	COIL,CHOKE 10UH
L652	61099014	COIL,CHOKE 33UH
⚠L593	61099019	COIL,CHOKE 1.0MH
L651	61099036	FILTER CHOKE
L8A3	61099047	FILTER CHOKE
DEG	61317201	COIL,DEGAUSSING
LC901	616K6028	NOISE FILTER 1H223X-TA
LC701 LC702 LC703 LC704	616K6801	NOISE FILTER 2R2-101-T
LC711 LC712 LC713 LC714 LC715 LC902	616K6946	NOISE FILTER TH28123MA
LC708 LC709 LC710	616K6964	NOISE FILTER TX07250NBT
LC705 LC706 LC707	616K6965	NOISE FILTER TX09500NBT

*** PWB ASSYS ***

	84M21C01	VIDEO PWB ASSY
	84N65J01	CRT PWB ASSY
	84N65T03	TR PWB ASSY
	⚠84P48A01	SW.REG PWB ASSY
	84P48D01	DEF PWB ASSY
	84P48M01	CPU PWB ASSY
	84P48S01	SDP PWB ASSY

*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***

HS2	31709105	SHEET,HEAT SINK
HS1	31709204	SHEET,HEAT SINK
HS582	31709503	SHEET,INSULATOR
HS581	31709507	SHEET,INSULATOR HEAT SINK
HS3	31709612	SHEET INSULATOR M-45
HS5A4	31709614	SHEET,INSULATOR M-45
SG901 SG902 SG903 SG904	329J0047	ARRESTER (300V),AT52
X801	64098031	X'TAL 12000KHZ
F601 F651	66671027	FUSE 250V 4A
SG951	667K7001	SPARK GAP 1.2KV

SYMBOL	PART NO	DESCRIPTION
SG905	66706002	SPARK GAP 1.5KV
	70032054	SG/CRT SOCKET(DBF)
CORD	70800071	LINE CORD 3P E
	71205037	HOLDER,FUSE
CABLE	73893105	CABLE,SIGNAL D15P-MD15P
	74004891	CAP
	79693511	PANEL BNC/D-SUB W

*** APPEARANCE PARTS ***

SYMBOL	PART NO	DESCRIPTION
	25282981	SCREW RIVET
	25313931	CABINET BACK(A)ASSY
	25313951	CABINET BACK (B) ASSY
	25313973	CABINET BOTTOM
	25317831	CABINET FRONT ASSY
	25419341	HOOK (B)
	25419371	ESCUTCHEON
	25419382	REVOLVING STAND ASSY
	25419402	REVOLVING SPINDLE
	25419571	BRACKET(BACK-B)
	25425621	LID,CONTROL
	25534631	COIL SPRING
	25613361	FOOT,RUBBER
	25757643	LABEL(REV.)
	25776251	LABEL (ESCUTCHEON)
	25850521	RIVET,PUSH

*** KNOBS & PUSH BUTTONS ***

SYMBOL	PART NO	DESCRIPTION
	25454691	KNOB,SLIDE
	25454741	PUSH BUTTON (SW)
	25454752	KNOB,CONTROL

*** PRINTED & PACKING MATERIALS ***

SYMBOL	PART NO	DESCRIPTION
	24813191	BAG,POLYETHYLENE(150*370)
	24814531	BAG,POLYEHYLENE (180*350)
	25815061	BAG,POLYETHYLENE (270X370
	25822831	SHEET PROTECTION
	25826651	PARTITION(185*270)
	25827432	FILLER T,CARTON
	25827442	FILLER B,CARTON

SYMBOL	PART NO	DESCRIPTION
	25829712	CARTON BOX(JC-1741UMB-3)
	78034408	MONITOR SALES OFFICE LIST
	78128472	USER'S MANUAL (5/6FGP)B
	78652213	TEMPLATE B

*** RESISTORS ***

SYMBOL	PART NO	DESCRIPTION
R406	401C6609	R,CARBON 2.2H 5% 1/4W
R583 R584	401C6651	R,CARBON 120H 5% 1/4W
R668	401C6657	R,CARBON 220H 5% 1/4W
R667 R834	401C6665	R,CARBON 470H 5% 1/4W
R124	401C6667	R,CARBON 560H 5% 1/4W
R5R6	401C6669	R,CARBON 680H 5% 1/4W
R578	401C6677	R,CARBON 1.5K 5% 1/4W
R5H1 R911	401C6689	R,CARBON 4.7K 5% 1/4W
⚠R5E8	401C6691	R,CARBON 5.6K 5% 1/4W
⚠R5AA ⚠R5AC	401C6745	R,CARBON 1.0M 5% 1/4W
R8C4	401C6761	R,CARBON 4.7M 5% 1/4W
R5GA	401G6127	R,CARBON 12H 5% 1/4W
⚠R491	401G6173	R,CARBON 1.0K 5% 1/4W
⚠R5N4	401G6185	R,CARBON 3.3K 5% 1/4W
⚠R5D4	401G6191	R,CARBON 5.6K 5% 1/4W
⚠R5A9	401G8137	R,CARBON 33H 5% 1/2W
R904 R905 R906	401H5645	R,CARBON 68H 5% 1/2W
R790 R791 R792	401H5657	R,CARBON 220H 5% 1/2W
R725 R726 R727	401H5661	R,CARBON 330H 5% 1/2W
R619	401H5671	R,CARBON 820H 5% 1/2W
R985	401H5677	R,CARBON 1.5K 5% 1/2W
R8A4	401H5681	R,CARBON 2.2K 5% 1/2W
R8A1	401H5683	R,CARBON 2.7K 5% 1/2W
R655	401H5705	R,CARBON 22K 5% 1/2W
R974 R975	401H5731	R,CARBON 270K 5% 1/2W
R601	401H5737	R,CARBON 470K 5% 1/2W
⚠R5N5	401H5741	R,CARBON 680K 5% 1/2W
R603	401H5745	R,CARBON 1.0M 5% 1/2W
⚠R5E7 R524 R7F4	401J9820	R,CARBON 0.0H
R7F5 R8F9		
R50F R51C R54F	401K5601	R,CARBON 1H 5% 1/6W
R56X		
R5K6 R909	401K5633	R,CARBON 22H 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
R7C0 R7C1 R7C2	401K5639	R,CARBON 39H 5% 1/6W
R5N2	401K5641	R,CARBON 47H 5% 1/6W
R8D0	401K5643	R,CARBON 56H 5% 1/6W
R970	401K5647	R,CARBON 82H 5% 1/6W
⚠R2011 R408 R57E	401K5649	R,CARBON 100H 5% 1/6W
R59A R59C R59E		
R59F R59G R59W		
R662 R7A0 R7A1		
R7A2 R7G1 R750		
R751 R752 R910		
R966		
R719 R720 R721	401K5653	R,CARBON 150H 5% 1/6W
R722 R723 R724		
R760 R761 R762		
R110 R784 R785	401K5655	R,CARBON 180H 5% 1/6W
R786 R8E7		
R56S R615 R8F4	401K5657	R,CARBON 220H 5% 1/6W
R2102 R513 R802	401K5659	R,CARBON 270H 5% 1/6W
R56M R58C R7G0	401K5661	R,CARBON 330H 5% 1/6W
R7A3 R7A5 R7A7	401K5663	R,CARBON 390H 5% 1/6W
R781 R782 R783	401K5665	R,CARBON 470H 5% 1/6W
R8C6		
R596 R598 R8L3	401K5667	R,CARBON 560H 5% 1/6W
R121 R672 R756	401K5669	R,CARBON 680H 5% 1/6W
R757 R758 R8E6		
R8H0		
R775 R777 R779	401K5671	R,CARBON 820H 5% 1/6W
R1003 R111 R409	401K5673	R,CARBON 1.0K 5% 1/6W
R454 R455 R5A8		
⚠R5EA ⚠R5E4 ⚠R5E5		
R5W4 R5W5 R516		
R53L R535 R605		
R674 R738 R787		
R788 R789 R8K8		
R8K9 R810 R811		
R832 R857 R858		
R859 R86A R86C		
R871 R873 R877		
R878 R879 R880		
R882 R956 R957		
R511 R659 R8H6	401K5675	R,CARBON 1.2K 5% 1/6W
R8H8		

SYMBOL	PART NO	DESCRIPTION
R474 R5A7 R5D3	401K5677	R,CARBON 1.5K 5% 1/6W
R528 R657 R658		
R8G9 R8H2		
R5R5 R793 R971	401K5679	R,CARBON 1.8K 5% 1/6W
R1011 R407 R466	401K5681	R,CARBON 2.2K 5% 1/6W
R57K R7G2 R7G3		
R731 R732 R735		
R736 R737 R739		
R8C1 R8C2 R816		
R983		
R5A0 R5A4 R5A5	401K5683	R,CARBON 2.7K 5% 1/6W
⚠R5E0 R5U7 R8H7		
R801 R870 R876		
⚠R201G R411 R5X6	401K5685	R,CARBON 3.3K 5% 1/6W
R52F R59L R59S		
R59T R590 R595		
R597 R707 R709		
R711 R713 R715		
R717 R776 R778		
R780 R8G4 R8G5		
R8G6 R8G7 R8G8		
R8H1 R8H9 R8L0		
R8L1 R863 R872		
R965		
R463 R5K5 R5N0	401K5687	R,CARBON 3.9K 5% 1/6W
R50K R51K R52K		
R53K R54K R55K		
R58K R7A4 R7A6		
R7A8 R7G4 R8E0		
R8H5		
R1021 ⚠R201M R401	401K5689	R,CARBON 4.7K 5% 1/6W
R462 R5R4 R533		
R663 R763 R8K4		
R8K5 R866		
⚠R2006 R465 R5D2	401K5691	R,CARBON 5.6K 5% 1/6W
⚠R5E1 ⚠R5E9 R5Y4		
R520 R7C4 R7C6		
R7C8 R8E1 R8G0		
R8G2 R8K0 R8K1		
R8K2		
R120 ⚠R201H R5G1	401K5693	R,CARBON 6.8K 5% 1/6W
R5G5 R5K7 R5M0		

SYMBOL	PART NO	DESCRIPTION
R5N1 R5T6 R514 R745 R8H4 R803 R818	401K5693	R,CARBON 6.8K 5% 1/6W
R5H4 R7E2 R7E3 R7E4 R8A9 R862 R864 R869	401K5695	R,CARBON 8.2K 5% 1/6W
R1002 ⚠R2007 ⚠R201K ⚠R2010 ⚠R2020 R403 R464 R475 R5G2 R5M8 R5S3 R5S4 R5T1 R5T2 R5T4 R5U0 R5U2 R5U3 R5X1 R5X4 R5Y3 R50M R504 R505 R515 R526 R527 R529 R53S R544 R569 R652 R7E5 R7E6 R7E7 R7F0 R7F1 R7F2 R7F3 R708 R710 R712 R714 R716 R718 R742 R744 R764 R765 R766 R767 R768 R769 R772 R773 R774 R8A2 R8A3 R8C0 R8C7 R8F8 R805 R807 R808 R809 R850 R851 R852 R867 R868 R874 R884 R907 R913 R951 R952 R979 R982 R984 R987	401K5697	R,CARBON 10K 5% 1/6W
⚠R2013 R420 ⚠R5E2 R5G4 R5R0 R5R7 R512 R523 R59N R741 R743 R886 R964	401K5699	R,CARBON 12K 5% 1/6W
R2104 R402 R421 R5H0 R614 R670 R8A5 R8A6 R8K3 R817	401K5701	R,CARBON 15K 5% 1/6W
R5X7	401K5703	R,CARBON 18K 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
R620 R8H3 R961 R986	401K5721	R,CARBON 100K 5% 1/6W
R484 R5K3 R5M3 R56A R56F R953	401K5723	R,CARBON 120K 5% 1/6W
R5S6 R56E R7D3 R7D4 R7D5	401K5725	R,CARBON 150K 5% 1/6W
R50H R50L R8A7	401K5727	R,CARBON 180K 5% 1/6W
R5G8 R5W0 R7D0 R7D1 R7D2 R8G1 R8G3 R8K7	401K5729	R,CARBON 220K 5% 1/6W
R56W R836	401K5731	R,CARBON 270K 5% 1/6W
R5N7 R7F6 R7F7 R7F8	401K5733	R,CARBON 330K 5% 1/6W
R438 R51H	401K5735	R,CARBON 390K 5% 1/6W
R5G3 R52H R912 R959	401K5737	R,CARBON 470K 5% 1/6W
R53H R8C5	401K5743	R,CARBON 820K 5% 1/6W
R5G9 R5M5 R54H R8C8	401K5745	R,CARBON 1.0M 5% 1/6W
R55H	401K5747	R,CARBON 1.2M 5% 1/6W
R492 R908	401K5749	R,CARBON 1.5M 5% 1/6W
⚠R201D ⚠R210C R440	401K5753	R,CARBON 2.2M 5% 1/6W
R501	401K5757	R,CARBON 3.3M 5% 1/6W
⚠R5C1 ⚠R5C2	40175125	R,CARBON 10H 5% 1/4W
⚠R5M1	40175127	R,CARBON 12H 5% 1/4W
R611	40175145	R,CARBON 68H 5% 1/4W
R581 R582	40298004	R,WIRE 1.0H 1% 5W
R602	40298005	R,WIRE 15H 5% 7W
R8F6	403F1125	R,METAL OXIDE 10H 5% 1W
R8F7	403F1135	R,METAL OXIDE 27H 5% 1W
⚠R57T	403F1137	R,METAL 33H 5% 1W
R405	403F1165	R,METAL 470H 5% 1W
R5A6 ⚠R5E3	403F1173	R,METAL OXIED 1.0K 5% 1W
R5A1	403F1177	R,METAL OXIDE 1.5K 5% 1W
R410	403F2101	R,METAL 1.0H 5% 2W
R8F0	403F2103	R,METAL OXIDE 1.2H 5% 2W
R8F3	403F2109	R,METAL 2.2H 5% 2W
R8F5	403F2117	R,METAL OXIDE 4.7H 5% 2W
R883	403F2149	R,METAL OXIDE 100H 5% 2W
R7G5 R8E4 R8E5	403F2151	R,METAL OXIDE 120H 5% 2W

SYMBOL	PART NO	DESCRIPTION
⚠R201L R404 R445 R5H5 R5M2 R5T7 R5U9 R5W9 R522 R613 R660 R730 R734 R8A8 R8C3 R8K6 R976 R978	401K5705	R,CARBON 22K 5% 1/6W
R424 R451 R5T3 R5U6 R5Y6 R50T R52T R53T R54T R55T R58T R981 R989	401K5707	R,CARBON 27K 5% 1/6W
⚠R2012 R2101 R423 R5C4 R5D5 R5H8 R5M6 ⚠R503 R509 R531 R532 R534 R568 R7D9 R7E0 R7E1 R853 R854 R855 R856 R885 R955 R962	401K5709	R,CARBON 33K 5% 1/6W
R1001 ⚠R200A ⚠R200C ⚠R201E R422 R482 R837	401K5711	R,CARBON 39K 5% 1/6W
⚠R2009 R443 R5A3 R5H2 R5H3 R5S8 R5T0 R669 R7C3 R7C5 R7C7 R806 R914 R954 R980	401K5713	R,CARBON 47K 5% 1/6W
⚠R200F R436 R437 R483 R5M7 R56G R56H R8F2 R958 R960	401K5715	R,CARBON 56K 5% 1/6W
R450 R5Y5 ⚠R502 R671	401K5717	R,CARBON 68K 5% 1/6W
R5H7 R5T8 R56T R59M R7D6 R7D7 R7D8 R835	401K5719	R,CARBON 82K 5% 1/6W
⚠R2008 ⚠R201F R431 R433 R434 R435 R452 R453 R5G7 R5S7 R5S9 R5U1 R5U8 R5W2 R5W3 R5X5 R56C R58H	401K5721	R,CARBON 100K 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
R476 R477	403F2169	R,METAL OXIDE 680H 5% 2W
R519	403F2171	R,METAL 820H 5% 2W
R8F1	403F3137	R,METAL OXIDE 33H 5% 3W
R456 R457 R599	403F3141	R,METAL OXIDE 47H 5% 3W
R861	403F3159	R,METAL OXIDE 270H 5% 3W
R521	403F3163	R,METAL OXIDE 390H 5% 3W
⚠R5D6	403F3173	R,METAL OXIDE 1.0K 5% 3W
⚠R57V	403F3177	R,METAL OXIDE 1.5K 5% 3W
R967 R968	403F3209	R,METAL OXIDE 33K 5% 3W
R5D7	40318994	R,METAL 2.2K 5% 5W
R5G6	40371105	R,METAL 1.5H 5% 1W
R656	40372135	R,METAL 27H 5% 2W
R604	40372151	R,METAL 120H 5% 2W
R666	40372175	R,METAL 1.2K 5% 2W
R665	40372197	R,METAL 10K 5% 2W
R664	40372203	R,METAL 18K 5% 2W
R607	40372211	R,METAL 39K 5% 2W
R606	40372219	R,METAL 82K 5% 2W
R608	40372329	R,METAL 0.22H 5% 2W
R651 R654	40373135	R,METAL 27H 5% 3W
R610	40373141	R,METAL 47H 5% 3W
R616 R617	40373219	R,METAL 82K 5% 3W
R8E8	40399049	R,METAL 82H 5% 3W
R701 R702 R703 R704 R705 R706	404C1646	R,METAL 75H 1% 1/6W
R795 R796 R797	404C1653	R,METAL 150H 1% 1/6W
R50C	404C1675	R,METAL 1.2K 1% 1/6W
⚠R2018	404C1677	R,METAL 1.5K 1% 1/6W
R58F	404C1681	R,METAL 2.2K 1% 1/6W
R122 R537 R661	404C1683	R,METAL 2.7K 1% 1/6W
R5A2	404C1685	R,METAL 3.3K 1% 1/6W
R51F R58A R653	404C1689	R,METAL 4.7K 1% 1/6W
R123	404C1691	R,METAL 5.6K 1% 1/6W
R52C	404C1695	R,METAL 8.2K 1% 1/6W
⚠R2019 R5X0 R50A R56R R729 R8E2 R8E3 R840 R843 R846 R849	404C1697	R,METAL 10K 1% 1/6W
R472 R53C R58G	404C1699	R,METAL 12K 1% 1/6W
R5F4 R5S5 R50G	404C1703	R,METAL 18K 1% 1/6W

SYMBOL	PART NO	DESCRIPTION
R536 R576 R579	404C1703	R,METAL 18K 1% 1/6W
R51G R53F R538	404C1705	R,METAL 22K 1% 1/6W
R573 R577		
R447 R51A R54C	404C1707	R,METAL 27K 1% 1/6W
R52G R55C	404C1709	R,METAL 33K 1% 1/6W
R5U4 R5U5	404C1710	R,METAL 36K 1% 1/6W
R425 R52A R53G	404C1711	R,METAL 39K 1% 1/6W
R55F		
R429 R471 R5S0	404C1713	R,METAL 47K 1% 1/6W
R5X2 R5X3 R56L	404C1715	R,METAL 56K 1% 1/6W
R572		
R426 R510 R57A	404C1717	R,METAL 68K 1% 1/6W
R473	404C1719	R,METAL 82K 1% 1/6W
⚠R2001 R430 R442	404C1721	R,METAL 100K 1% 1/6W
R5F3 R5F8 R5S1		
R5S2 R5X9 R5Y1		
R5Y2 R50E ⚠R507		
R51E R52E R53A		
R53E R54E R54G		
R55E R56K R58E		
R838 R841 R844		
R847		
R446 R55G R574	404C1723	R,METAL 120K 1% 1/6W
R839 R842 R845	404C1724	R,METAL 130K 1% 1/6W
R848		
R428 R5N9 R54A	404C1725	R,METAL 150K 1% 1/6W
R5X8 R508	404C1727	R,METAL 180K 1% 1/6W
R506 R55A R571	404C1729	R,METAL 220K 1% 1/6W
R575		
R427	404C1731	R,METAL 270K 1% 1/6W
R441	404C1739	R,METAL 560K 1% 1/6W
R444	404C1743	R,METAL 820K 1% 1/6W
R439	404C1745	R,METAL 1.0M 1% 1/6W
⚠R5C3 ⚠R5D1 ⚠R5F9	404K5109	R,METAL 2.2H 5% 1/4W
⚠R57H ⚠R570		
R461 ⚠R591	404K5117	R,METAL 4.7H 5% 1/4W
⚠R481 R5F2 ⚠R860	404K5125	R,METAL 10H 5% 1/4W
⚠R5F0 ⚠R57F ⚠R57L	404K5141	R,METAL 47H 5% 1/4W
⚠R5R8	40405125	R,METAL 10H 5% 1/4W
⚠R5N3	408A8109	R,FUSE 2.2H 5% 1/2W
⚠R592 ⚠R593 ⚠R594	408A8157	R,FUSE 220H 5% 1/2W

SYMBOL	PART NO	DESCRIPTION
⚠R57G	409A6149	R,FUSE 100H 5% 1/4W

*** CAPACITORS ***

SYMBOL	PART NO	DESCRIPTION
C903	420C9551	C,CERAMIC 500V 100PF
C481 C5G8 ⚠C591	420C9563	C,CERAMIC 500V 1000PF
⚠C592 ⚠C593 C7A6		
C7A7 C7A8 C904		
C574	420C9567	C,CERAMIC 500V 2200PF
C7E9 C796 C797	420C9569	C,CERAMIC 50V 3300PF
C798		
C901	4203J575	C,CERAMIC 500V 0.01UF
C905	42040108	C,CERAMIC 2KV 0.01UF
C603 C604	42053069	C,CERAMIC 400V 3300PF
C609 C617	42053071	C,CERAMIC 400V 4700PF
C658	42099086	C,CERAMIC 2KV 1000PF
C611 C618	42099088	C,CERAMIC 2KV 220PF
C651 C655	42099095	C,CERAMIC 2KV 330PF
C607 C614	42099096	C,CERAMIC 2KV 470PF
C451 C518 C521	421A0425	C,CERAMIC 50V 0.01UF
C530 C57A C810		
C811		
C86A C86C	421CC461	C,CERAMIC 16V 0.01UF
C5R1	421C0205	C,CERAMIC 50V 220PF
C401 C762 C763	421C0213	C,CERAMIC 50V 1000PF
C764 C777 C778		
C779 C8A9 C867		
C737 C738 C739	421C0219	C,CERAMIC 50V 3300PF
C5G1 C7D4 C7D5	421C0225	C,CERAMIC 50V 0.01UF
C7D6 C707 C708		
C709 C710 C711		
C712 C718 C719		
C720 C759 C760		
C761 C768 C769		
C770 C784 C785		
C786 C790 C791		
C792		
C86A C86C	421C3461	C,CERAMIC 16V 0.01UF
C5S1 C5S8 C5S9	421D6009	C,CERAMIC 25V 0.1UF
C5T0 C5T1 C5T2		
C5X0 C504 C59E		
C59F C59G C59H		

SYMBOL	PART NO	DESCRIPTION
C59K C59M C7E5	421D6009	C,CERAMIC 25V 0.1UF
C7E6 C7E7 C7E8		
C7F0 C7F1 C7F2		
C714 C716 C753		
C754 C755 C8A8		
C8H7 C8K3 C8K4		
C8K7 C8K8 C8K9		
C802 C826 C827		
C829 C830 C834		
C835 C864 C865		
C868 C869 C870		
C958 C965		
C200P C2021 C406	421D6013	C,CERAMIC 50V 0.1UF
C47P C471 C5A5		
C5EP C50A C50R		
C50S C507 C51C		
C51P C56A C56C		
C57P C8C7 C8C8		
C5X1	421J9036	C,CERAMIC 25V 0.1UF
C8A1	423A1028	C,CERAMIC 50V 20PF
C509 C717	423A1045	C,CERAMIC 50V 100PF
C5G3 C8G9 C8K0	423A1057	C,CERAMIC 50V 330PF
C8K1 C8K2		
C616	423A1100	C,CERAMIC 50V 390PF
C5G5 C5M0 C8K5	423A1101	C,CERAMIC 50V 470PF
C962		
C959	423A1103	C,CERAMIC 50V 560PF
C5EE C7D1 C7D2	423A2015	C,CERAMIC 50V 10PF
C7D3 C804 C805		
C820	423A2025	C,CERAMIC 50V 15PF
C5G0 C506	423A2033	C,CERAMIC 50V 33PF
C787 C788 C789	423A2035	C,CERAMIC 50V 39PF
⚠C5E2	423A2037	C,CERAMIC 50V 47PF
C781 C782 C783	423A2041	C,CERAMIC 50V 68PF
C529 C549 C966	423A2045	C,CERAMIC 50V 100PF
C5M5 C502 C510	423A2103	C,CERAMIC 50V 180PF
C511	423A2105	C,CERAMIC 50V 270PF
C515	427A7005	C,FILM 100V 0.0022UF
C8A6	427F4004	C,FILM 50V 1800PF
C8A7 C8H0	427F4009	C,FILM 50V 4700PF
C8A5 C951 C957	427F4013	C,FILM 50V 0.01UF

SYMBOL	PART NO	DESCRIPTION
C5G2	427F4601	C,FILM 50V 1000PF
C513	427F4603	C,FILM 50V 1500PF
C8D0	427F4605	C,FILM 50V 2200PF
C520	427F4610	C,FILM 50V 5600PF
C412	427F4611	C,FILM 50V 6800PF
C5EA ⚠C5E6 C500	427F4613	C,FILM 50V 0.01UF
C59N		
C516	427F4614	C,FILM 50V 0.012UF
C5G6 C5H7 C5H8	427F4621	C,FILM 50V 0.047UF
C5M4 C5M8		
C661	427F4624	C,FILM 50V 0.082UF
C5M2	427F4625	C,FILM 50V 0.1UF
C512 C578	427F4651	C,FILM 50V 1000PF
⚠C5D2	427F4659	C,FILM 50V 4700PF
C955 C956 C963	427F4675	C,FILM 50V 0.1UF
C5A2 C5A3	427J9112	C,FILM 50V 1000PF
⚠C5D1	42703455	C,FILM 630V 2200PF
⚠C577	42703575	C,FILM 200V 0.1UF
C664	42799057	C,FILM 100V 3300PF
C441 C442 C606	428B3013	C,METAL FILM 50V 0.1UF
C662 C8G0 C8G2		
C402 ⚠C5D3	428B3021	C,METAL FILM 50V 0.47UF
C50C C8A2 C8D1	428B3025	C,METAL FILM 50V 1.0UF
C613	428B3101	C,METAL FILM 50V 0.010UF
⚠C5E8 C5GE	428CJ022	C,METAL FILM 250V 0.1UF
C666 C667	428D0053	C,METAL 100V 0.1UF
C7A0 C7A1 C7A2	428D0097	C,FILM 250V 0.22UF
C907		
C409	428D4317	C,METAL FILM 100V 0.22UF
⚠C5A8 C964	428JJ115	C,METAL 1000V 0.047UF
C960	42808501	C,METAL FILM 1.6KV 1000PF
C654	42809001	C,METAL FILM 100V 0.01UF
⚠C581	42817101	C,METAL 1600V 1500PF
⚠C5A6	42817102	C,METAL FILM 2.0KV 1900PF
⚠C582	42817201	C,METAL 1600V 6200PF
⚠C599	42839601	C,METAL 400V 0.1UF
⚠C59A	42839602	C,METAL 400V 0.12UF
⚠C598	42839606	C,METAL 400V 0.24UF
⚠C597	42839615	C,METAL 400V 0.68UF 5%
⚠C595 ⚠C596	42839631	C,METAL FILM 400V 0.6UF

SYMBOL	PART NO	DESCRIPTION
⚠C59C	42839708	C,METAL 400V 0.33UF 5%
C610	42840225	C,METAL 630V 0.022UF
C601	42898002	C,FILM AC250V 0.47UF
C602 C619	42899098	C,FILM 250V 0.1UF
C7C6	430BJ518	C,ELEC 160V 33UF
C771 C772 C773	430B3104	C,ELEC 50V 3.3UF
C1001	430B6016	C,ELEC 10V 100UF
C801	430B6017	C,ELEC 10V 220UF
⚠C2004 ⚠C2006 C733	430B6029	C,ELEC 16V 100UF
C734 C735 C969		
C5S6 C5S7 C508	430B6030	C,ELEC 16V 220UF
C724 C725 C726	430B6032	C,ELEC 16V 470UF
C736		
C5G9	430B6039	C,ELEC 25V 22UF
⚠C2002 C472 C5A1	430B6041	C,ELEC 25V 47UF
C5S4 C5S5 C5X2		
C57C C722 C741		
C780 C8H8		
C461	430B6054	C,ELEC 35V 100UF
C8L0	430B6060	C,ELEC 50V 0.47UF
C517 C8H9	430B6061	C,ELEC 50V 1.0UF
C8H3	430B6062	C,ELEC 50V 2.2UF
C5S2	430B6063	C,ELEC 50V 3.3UF
C5H0 C5H1 C5X3	430B6064	C,ELEC 50V 4.7UF
C501 C8G8 C8H2		
C8H6		
C462 ⚠C5E0 C5H2	430B6065	C,ELEC 50V 10UF
C5M7 C7E0 C7E1		
C7E2 C727 C728		
C729 C730 C731		
C732 C756 C757		
C758 C8G4 C8H5		
C8K6 C871		
⚠C2008 C5C0 C5GC	430B6066	C,ELEC 50V 22UF
C572		
⚠C5E9	430B6068	C,ELEC 50V 47UF
C571	430B6069	C,ELEC 50V 100UF
C590	430B6096	C,ELEC 100V 3.3UF
C482	430B6536	C,ELEC 200V 10UF
C833	430B8135	C,ELEC 10V 220UF
C713 C715	430B8144	C,ELEC 16V 47UF

SYMBOL	PART NO	DESCRIPTION
C803	430B8152	C,ELEC 25V 10UF
⚠C5GA	430B8180	C,ELEC 50V 22UF
C863	430B9016	C,ELEC 10V 100UF
C503 C8C9 C831	430B9017	C,ELEC 10V 220UF
C861 C967 C968	430B9025	C,ELEC 16V 10UF
C765 C766 C767	430B9026	C,ELEC 16V 22UF
C952 C953 C961	430B9028	C,ELEC 16V 47UF
C8C3	430B9031	C,ELEC 16V 330UF
C750 C751 C752	430B9032	C,ELEC 16V 470UF
⚠C5E7	430B9039	C,ELEC 25V 22UF
C5A4 C862	430B9041	C,ELEC 25V 47UF
C665	430B9053	C,ELEC 35V 47UF
C411	430B9054	C,ELEC 35V 100UF
C660	430B9057	C,ELEC 35V 470UF
C408	430B9061	C,ELEC 50V 1.0UF
⚠C5E3 C612	430B9065	C,ELEC 50V 10UF
C2101 ⚠C5E4 C5G4	430B9066	C,ELEC 50V 22UF
C5M1		
C615	430B9069	C,ELEC 50V 100UF
C407	430B9070	C,ELEC 50V 220UF
C405	430B9071	C,ELEC 50V 330UF
C7A3 C7A4 C7A5	430B9512	C,ELEC 160V 1.0UF
C793 C794 C795	430B9513	C,ELEC 160V 2.2UF
C5G7 ⚠C59L C7D7	430B9552	C,ELEC 250V 1.0UF
C832	430C0253	C,ELEC 25V 22UF
C8C1 C8C2	430C2105	C,ELEC 25V 470UF
⚠C5F1	430C6635	C,ELEC 160V 33UF
C774 C775 C776	430C8423	C,ELEC 16V 470UF
C491	430C9154	C,ELEC 350V 3.3UF
C8C5	430J8109	C,ELEC 16V 47UF
C659 C663	4302J059	C,ELEC 35V 2200UF
C653	4302J559	C,ELEC 250V 47UF
C410	4303D183	C,ELEC 50V 1000UF
C5A9 C5M6 C5M9	4303J222	C,ELEC 250V 2.2UF
C5H6	4303J224	C,ELEC 250V 4.7UF
C8A3 C8A4	43032175	C,ELEC 50V 220UF
C656 C657 C669	4304A013	C,ELEC 160V 100UF
C5H9	4309H105	C,ELEC 200V 4.7UF
⚠C5E5	4309H106	C,ELEC 250V 22UF

SYMBOL	PART NO	DESCRIPTION
C652	43099174	C,ELEC 100V(HV) 470UF
C605	43109493	C,ELEC 400V 470UF
C583	43198002	C,ELEC 200V 47UF
C8C4	432K6011	C,ELEC 10V 220UF
C8F0	432K6208	C,ELEC 63V 33UF
C8H4	433A3058	C,ELEC 50V 4.7UF
⚠C5MC	433A4025	C,ELEC 16V 47UF
C5S3	433A4033	C,ELEC 25V 10UF
C8G1 C8G3 C8H1	433A4056	C,ELEC 50V 2.2UF
C7C0 C7C1 C7C2	433A6045	C,ELEC 16V 22UF
C7C3 C7C4 C7C5		
C701 C702 C703		
C704 C705 C706		
C5EC	433A7013	C,ELEC 16V 47UF
C866	433A7031	C,ELEC 35V 4.7UF
C514	435A8307	C,TANTALUM 35V 1.0UF

REPLACEMENT PARTS LIST

The components specified Model JC-1741UMR-3

Note: The components identified by ⚠ make are critical for safety.
Replace only with parts Number specified.

SYMBOL	PART NO	DESCRIPTION
*** CRT & TUNER ***		
⚠CRT	33017513	CRT AF17G9SLB22-K-TC06R
*** ICS ***		
⚠IC5E1	370A1009	IC UPC1093J-T (REG)
IC503 IC8G0 IC8G2	37011018	IC UPC311C (COMP)
IC402 IC5G1	37011024	IC UPC3403C (OP-AMP)
⚠IC2001 ⚠IC2002	37011132	IC UPC4082C (OP-AMP)
IC471 IC5S2 IC506 IC509 IC809 IC810 IC863 IC951	37011206	IC XRA10358 (OP-AMP)
IC862 IC864	37011210	IC XRA10324 (Q OP-AMP)
⚠IC5E2 IC5G0 IC8A2 IC8G1	37011262	IC XRA10393 (COMP)
IC431 IC505	37051036	MOS UPD4066BC
IC803	37051042	MOS UPD4028BC (BCD DECI)
IC8G5	37051096	IC SN74LS367AN (BUFF)
IC502 IC8G4	37051179	IC SN74LS123N (MONO MLT)
IC805	37053036	MOS SN74HC32N (OR)
IC5A1	37053390	MOS HD74HC123AP
IC804	37055401	MOS XRM93C56B-E
⚠IC501	37056295	IC LA7851
IC702 IC703 IC704	37056433	IC M51399P
IC5S1 IC952	37056618	IC BA6110
IC601	37056810	IC M67297 (SW.REG CONT)
IC860 IC861	37056812	IC M62362P
IC802	37056813	IC M62359P
IC8G3	37056867	IC M52036SP
IC5S5	37056877	IC NJM4200D (MULTIPLIER)
IC571 IC8A1	37056885	IC NJM3404AD
IC401	37056887	IC TDA1675A
IC705 IC706 IC707	37056905	IC VPA12H
IC5S3 IC5S4 IC504 IC806 IC807 IC808	37056917	IC XRA10324A (Q OP-AMP)
IC701	37056974	IC M52310P
IC801	37076116	MOS UPD78C14G-J13-36
IC811	371E1514	IC PST529D-2(T)(VOLTAGE D
IC510 IC511	37101543	IC XRA10339

SYMBOL	PART NO	DESCRIPTION
*** TRANSISTORS ***		
⚠Q5M4	350A1500	TR 2SA1767-TA
Q1001 Q1006 ⚠Q2002 Q421 Q462 Q5G2 Q5G4 Q5M1 Q5R3 Q572 Q652 Q653 Q714 Q715 Q716 Q8A2 Q8A4 Q8A6 Q8A8 Q807 Q861 Q862 Q952 Q957	350E3218	TR 2SC1740S-T R
Q740 Q741 Q742	350H4417	TR,2SC1473-TA Q
Q701 Q702 Q703 Q704 Q705 Q706 Q710 Q726 Q727 Q728 Q731 Q733	350H4808	TR 2SC2901K-T(FT=400MHZ)
Q7C0	350H5017	TR,2SC3811-TA Q
Q5A1 Q5R2 Q502 Q806	350H5018	TR,2SC3811-TA R
Q954	350K4311	TR 2SA953-T K
⚠Q5E2	350K4411	TR 2SA952 K,AT
Q5A3	350K4412	TR 2SA952 L,AT
⚠Q2001 Q5G5 Q5M2 Q5R4 Q501 Q56E Q573	350K4518	TR 2SA933-T R
Q743 Q744 Q745	350K5217	TR,2SA1018-TA Q
Q5G1 Q5G3 Q5M0 Q5S1 Q711 Q712 Q713 Q8A3 Q8A7 Q863 Q864 Q951	350K5718	TR 2SA933S-T R
Q732	350K7500	TR 2SA1206-T
Q956	35011600	TR 2SA1831
Q451	35025211	TR 2SB546 K
Q571	35025212	TR 2SB546 L
Q5A2 ⚠Q5E1	35050918	TR 2SC1384 R
Q651	35053012	TR 2SC1941 L
Q481	35056312	TR 2SC2688 L
Q482	35058905	TR,2SC1841 E
Q452	35063411	TR,2SD401A K
Q461 Q471 Q8A1 Q8C0	35065416	TR,2SD882 P
Q723 Q724 Q725	35080200	TR 2SC2407/2407A

SYMBOL	PART NO	DESCRIPTION
Q958	35084600	TR,2SC3675
Q953 Q955	35094200	TR 2SC4572
⚠Q581	35094300	TR 2SC3998
Q422 Q423 Q424 Q425	351A0690	TR DTC115ES-TP
⚠Q5E4	351G0553	TR DTA143ES-T
Q56A Q56C Q59A Q59E	351G0560	TR DTA144WS-T
Q1003	351G0561	TR DTA144ES-T
Q708 Q8G0 Q8G1	351G0600	TR DTA114ES-T
⚠Q2005 ⚠Q2006 Q5G0 Q5R0 Q707 Q709 Q719 Q734 Q8A5 Q8G2 Q8G4 Q802 Q803 Q804 Q805	351G0601	TR DTC114ES-T
⚠Q5E0 Q50A Q51A Q52A Q53A Q54A Q55A Q58A Q59C Q59F Q717 Q718 Q8G3	351G0602	TR DTC144ES-T
Q801	351G0641	TR DTC114YS-T
Q654	351G0653	TR DTC123ES-T
Q2101 Q5R1	351G0655	TR DTC143ES-TP
Q1005	351G0656	TR DTC143XS-T
Q1002 Q1004	351G0657	TR DTC143ZS-TP
Q5G6 Q5M3 Q574	35122500	TR 2SK758
Q8A9	35122600	TR 2SK701
⚠Q5A4 ⚠Q5A5	35122800	TR 2SK1271
Q601	35125800	TR,2SK1342
⚠Q5E3	35126900	TR 2SK806
Q591 Q592 Q593 Q594 Q595 Q596	35127300	TR 2SK947-M
Q860	35560416	TR 2SD794A P
CR601	35595015	TRIAC AC10FGM
*** DIODES ***		
D605 D606S D607S	360K1010	DIODE,SI.1S2472
D101 D102 D103 D104 D105 D106 D107 D108 D109	360K1027	DIODE 1SS132

SYMBOL	PART NO	DESCRIPTION
D110 D111 D112 D113 D114 D115 D116 D2003 ⚠D2006 ⚠D2008 D2101 D2102 D2103 D401 D5A0 D5A1 D5A3 ⚠D5E1 D5G2 D5G4 D5G5 D5G6 D5M0 D5M2 D5M3 D5M4 D5R1 D501 D502 D591 D592 D654 D655 D7G0 D701 D702 D703 D704 D705 D706 D707 D708 D709 D710 D711 D712 D713 D714 D715 D716 D717 D718 D719 D720 D721 D722 D723 D725 D726 D727 D728 D729 D730 D8A1 D8A2 D8A3 D8A4 D8A5 D8A6 D8G0 D8G1 D8G2 D8G3 D8G4 D8G5 D8G6 D8G7 D8G8 D8G9 D8H2 D8H3 D8H4 D803 D804 D805 D806 D860 D861 D862 D863 D864 D901 D951 D952 D953 D954	360K1027	DIODE 1SS132
D482 D491 D755 D756 D757 D758 D759 D760 D761 D762 D763 D902	360K1032	DIODE 1SS82-TA
ZD801	360K3087	DIODE RD3.0EB-T4
⚠ZD5E2	360K3098	DIODE RD12EB(3)-T4
ZD860	360K3114	DIODE 8.2EB(1)
ZD452	360K3118	DIODE,RD10EB(1)-T4
ZD653	360K3123	DIODE RD20EB(3)
ZD652	360K3124	DIODE RD8.2EB (3)-T4
ZD471 ZD5A1 ⚠ZD5E1	360K3134	DIODE RD15EB(2)-T4

SYMBOL	PART NO	DESCRIPTION
ZD571	360K3134	DIODE RD15EB(2)-T4
ZD5R1	360K3145	DIODE RD27EB-T4
ZD5A0	360K3157	DIODE RD5.1EB(3)-T4
ZD503	360K3160	DIODE RD8.2EB(2)-T4
ZD5R2	360K3161	DIODE RD12EB(2)-T4
ZD8A3	360K3169	DIODE RD6.2EB(2)-T4
ZD461 ZD561 ZD591 ZD592	360K3170	DIODE RD6.2JSB(2)/JSAB(2)
ZD502	360K3188	DIODE RD3.9EB(2)-T4
ZD711 ZD712 ZD713	360K3300	DIODE RD2.0EB(1)-T4
ZD5A2	360K3326	DIODE RD18EB(3)-T4
ZD501	360K3403	DIODE RD5.1JSB(1)-T4
⚠ZD2001⚠ZD2002	360K3416	DIODE RD5.1JSB(2)-T4
ZD951	360K3605	DIODE RD2.2ESB(1)-T4
ZD5A3	360K3620	DIODE RD3.6ESB(1)
ZD401	360K3623	DIODE RD3.9ESB(1)-T4
ZD5G2	360K3624	DIODE RD3.9ES AB2-T4
ZD8A4	360K3634	DIODE RD5.1ESB(1)-T4
⚠ZD5E0	360K3635	DIODE RD5.1ESB(2)-T4
ZD803	360K3637	DIODE RD5.6ESB
ZD2101	360K3647	DIODE RD6.8ESB(2)-T4
ZD5G0 ZD710 ZD8A1	360K3654	DIODE RD8.2ES AB1-T4
⚠ZD5D1	360K3655	DIODE RD8.2ESB(2)/ESAB(2)
ZD5G3	360K3656	DIODE RD8.2ES AB3-T4
ZD5G1	360K3658	DIODE RD9.1ESB(1)-T4
⚠ZD5E4	360K3675	DIODE RD13ESB(2)-T4
ZD8A2	360K3683	DIODE RD16ESB(2)-T4
ZD651	360K3721	DIODE RD36ESB(3)-T4
D602	361K7303	DIODE EU02 V1
⚠D5A2	361K7312	DIODE EP01C-V
⚠D5E2 ⚠D5E4 ⚠D572 D590 D8A9 D8C0	361K7562	DIODE EGP10G G23
D5M5	361K7637	DIODE EGP20G G23
MD801 MD802	361K8233	DIODE DAN209S-TP
D603	36107174	DIODE RU1P
D656	36107178	DIODE RU3
D573 D574 D8A7	36107293	DIODE RK14
D651 D652	36107320	DIODE FMG-G26S
⚠D5D1 ⚠D5E3	36107541	DIODE EG01A
⚠D583 ⚠D584	36107560	DIODE RG2A2

SYMBOL	PART NO	DESCRIPTION
D5G7	36107638	DIODE EGP30G
D653	36107680	DIODE D5LC20U
D601	36108201	DIODE,NETWORK D5SBA60S
⚠D582	36108238	DIODE FMP-G3FS
ZD802	367K0017	DIODE RD4.7EB-T4
ZD861	367K0048	DIODE RD5.1FB(2)
D120	36801340	LED SLR-34MC3F
D121 D122	36801343	LED SLA-570MT3F(XJ,XK,XL)
D402 D481 D5G3 D5G8 D731 D732 D8C3 D8C4	369K2136	DIODE RGP10G,AT
ZD451	369K5512	DIODE,ZENER RD18JSB2
D604S	36902175	DIODE S3LA20-4004 P15
D5G0 D5G1	380K5054	VARISTOR MA29W-A (TP)
TH601	38112058	THERMISTOR,POSITIVE
PC601 PC602	38200340	IC TLP634(D4-GR-LF2)

*** TRANSFORMERS ***

SYMBOL	PART NO	DESCRIPTION
T571	45804008	TRANS,H.DRIVE
L5M1	46206005	TRANS,CHOKE 4MH
L5G1	46206006	TRANS,CHOKE 2MH
T5G0 T5M0	46302105	TRANS,FERRITE
T8A1	46304111	TRANS,CONVERTER
T601	46311814	TRANS,SWITCHING W345B
⚠T5A1	47105677	F.B.T.(SR)
⚠T581	47710017	TRANS,H.OUTPUT

*** VARIABLE RESISTORS ***

SYMBOL	PART NO	DESCRIPTION
VR701 VR702 VR703	410G1210	R,VARIABLE B3.3K
VR8A1	410G1307	R,VARIABLE B1.0K
VR861	410G1311	R,VARIABLE B4.7K
VR860	410G1313	R,VARIABLE B10K
VR801 VR802	410G1415	R,VARIABLE B22K-T
VR101 VR102	41011106	R,VARIABLE B10K-V
VR411	41087005	R,VARIABLE B1K
VR401 VR421 VR590 VR951	41087009	R,VARIABLE B10K
VR441 VR56A	41087012	R,VARIABLE 50K
VR56C VR56E VR901 VR952	41087014	R,VARIABLE B200

SYMBOL	PART NO	DESCRIPTION
VR431	41087015	R,VARIABLE B300K
VR461	41087056	R,VARIABLE B2K
VR5U1 VR5W1	41087059	R;VARIABLE 10K
VR5S2	41087066	R,VARIABLE B500K
VR720 VR721 VR722 VR723 VR724 VR725	415K5159	R,VARIABLE B20K
VR5D1	41505005	R,VARIABLE B2K
⚠VR2001⚠VR5E1	41505007	R,VARIABLE B5K
VR651	41505103	R,VARIABLE B500

*** RELAYS & SWITCHES ***

SYMBOL	PART NO	DESCRIPTION
SW401	65161048	SWITCH,SLIDE
SW701	65161066	SWITCH,SLIDE 2-6L-2NS(S1)
SW111	65161067	SWITCH,SLIDE 1-6L-2NS V
SW112	65161068	SWITCH,SLIDE 1-6L-3NS V
SW101 SW102 SW103 SW104 SW105 SW106 SW107 SW108 SW109 SW110	653F0031	SWITCH,PUSH BUTTON
	65360029	SWITCH,PUSH BUTTON
RL601	65660019	RELAY G5P-1(24V)
RL590 RL591	65660027	RELAY G6C1117P-US DC24V

*** COILS & FILTERS ***

SYMBOL	PART NO	DESCRIPTION
MR802	390C0151	R,NETWORK 8*10K 5% 1/8W
MR801	390C9804	R,NETWORK
MR803 MR804 MR805 MR806 MR807	390C9805	R,NETWORK 4*1.0K 5% 1/6W
MC801 MC802 MC803 MC804	39013042	C,NETWORK 25V 0.01UF
⚠L591 ⚠L592	60919121	COIL,H.LIN. N-59 (16T)
⚠L590	60919122	COIL,H.LIN. N-60 (10T)
L5S1	610E1717	COIL,FILTER 10UH
L710 L711 L712	610E1726	COIL,FILTER 56UH
L602	610F5002	FERRITE BEADS (B-02-RT)
L720 L721 L722	610F6014	COIL,FILTER 5.6UH
L901 L902 L903	610F7619	COIL,FILTER 0.15UH
L8A5	61055001	COIL,FILTER 8500UH
INLET	61062076	POWER LINE FILTER
FL601 FL602	61062102	FILTER COIL 8.2MH•

SYMBOL	PART NO	DESCRIPTION
⚠L5E1 L5G0 L5G2 ⚠L5M0 L8A1 L8A2	61064006	COIL,FILTER 50UH
⚠L594	61070240	FILTER CHOKE 4MH
L601	61072349	COIL,FILTER
L704	61099011	COIL,CHOKE 33UH
L653	61099013	COIL,CHOKE 10UH
L652	61099014	COIL,CHOKE 33UH
⚠L593	61099019	COIL,CHOKE 1.0MH
L651	61099036	FILTER CHOKE
L8A3	61099047	FILTER CHOKE
DEG	61317201	COIL,DEGAUSSING
LC901	616K6028	NOISE FILTER 1H223X-TA
LC701 LC702 LC703 LC704	616K6801	NOISE FILTER 2R2-101-T
LC711 LC712 LC713 LC714 LC715 LC902	616K6946	NOISE FILTER TH28123MA
LC708 LC709 LC710	616K6964	NOISE FILTER TX07250NBT
LC705 LC706 LC707	616K6965	NOISE FILTER TX09500NBT

*** PWB ASSYS ***

SYMBOL	PART NO	DESCRIPTION
	84M21C01	VIDEO PWB ASSY
	84N65J01	CRT PWB ASSY
	84N65T03	TR PWB ASSY
	⚠84P48A01	SW.REG PWB ASSY
	84P48D01	DEF PWB ASSY
	84P48M01	CPU PWB ASSY
	84P48S01	SDP PWB ASSY

*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***

SYMBOL	PART NO	DESCRIPTION
HS2	31709105	SHEET,HEAT SINK
HS1	31709204	SHEET,HEAT SINK
HS582	31709503	SHEET,INSULATOR
HS581	31709507	SHEET,INSULATOR HEAT SINK
HS3	31709612	SHEET INSULATOR M-45
HS5A4	31709614	SHEET,INSULATOR M-45
SG901 SG902 SG903 SG904	329J0047	ARRESTER (300V),AT52
X801	64098031	X'TAL 12000KHZ
F601 F651	66671027	FUSE 250V 4A
SG951	667K7001	SPARK GAP 1.2KV

SYMBOL	PART NO	DESCRIPTION
SG905	66706002	SPARK GAP 1.5KV
	70032054	SG/CRT SOCKET(DBF)
	71205037	HOLDER,FUSE
CABLE	73893105	CABLE,SIGNAL D15P-MD15P
	74004891	CAP
	75513033	POWER CORD
	79693511	PANEL BNC/D-SUB W
*** APPEARANCE PARTS ***		
	25282981	SCREW RIVET
	25313931	CABINET BACK(A)ASSY
	25313951	CABINET BACK (B) ASSY
	25313973	CABINET BOTTOM
	25317831	CABINET FRONT ASSY
	25419341	HOOK (B)
	25419371	ESCUTCHEON
	25419382	REVOLVING STAND ASSY
	25419402	REVOLVING SPINDLE
	25419571	BRACKET(BACK-B)
	25425621	LID,CONTROL
	25534631	COIL SPRING
	25613361	FOOT,RUBBER
	25757643	LABEL(REV.)
	25850521	RIVET,PUSH
*** KNOBS & PUSH BUTTONS ***		
	25454691	KNOB,SLIDE
	25454741	PUSH BUTTON (SW)
	25454752	KNOB,CONTROL
*** PRINTED & PACKING MATERIALS ***		
	24813191	BAG,POLYETHYLENE(150×370)
	24814531	BAG,POLYEHYLENE (180×350)
	25815061	BAG,POLYETHYLENE (270X370
	25822831	SHEET PROTECTION
	25826651	PARTITION(185×270)
	25827432	FILLER T,CARTON
	25827442	FILLER B,CARTON
	25829722	CARTON BOX(JC-1741UMR-3)

SYMBOL	PART NO	DESCRIPTION
	78034408	MONITOR SALES OFFICE LIST
	78043393	WARRANTY CARD
	78128472	USER'S MANUAL (5/6FGP)B
	78652213	TEMPLATE B
*** RESISTORS ***		
R406	401C6609	R,CARBON 2.2H 5% 1/4W
R583 R584	401C6651	R,CARBON 120H 5% 1/4W
R668	401C6657	R,CARBON 220H 5% 1/4W
R667 R834	401C6665	R,CARBON 470H 5% 1/4W
R124	401C6667	R,CARBON 560H 5% 1/4W
R5R6	401C6669	R,CARBON 680H 5% 1/4W
R578	401C6677	R,CARBON 1.5K 5% 1/4W
R5H1 R911	401C6689	R,CARBON 4.7K 5% 1/4W
⚠R5E8	401C6691	R,CARBON 5.6K 5% 1/4W
⚠R5AA ⚠R5AC	401C6745	R,CARBON 1.0M 5% 1/4W
R8C4	401C6761	R,CARBON 4.7M 5% 1/4W
R5GA	401G6127	R,CARBON 12H 5% 1/4W
⚠R491	401G6173	R,CARBON 1.0K 5% 1/4W
⚠R5N4	401G6185	R,CARBON 3.3K 5% 1/4W
⚠R5D4	401G6191	R,CARBON 5.6K 5% 1/4W
⚠R5A9	401G8137	R,CARBON 33H 5% 1/2W
R904 R905 R906	401H5645	R,CARBON 68H 5% 1/2W
R790 R791 R792	401H5657	R,CARBON 220H 5% 1/2W
R725 R726 R727	401H5661	R,CARBON 330H 5% 1/2W
R619	401H5671	R,CARBON 820H 5% 1/2W
R985	401H5677	R,CARBON 1.5K 5% 1/2W
R8A4	401H5681	R,CARBON 2.2K 5% 1/2W
R8A1	401H5683	R,CARBON 2.7K 5% 1/2W
R655	401H5705	R,CARBON 22K 5% 1/2W
R974 R975	401H5731	R,CARBON 270K 5% 1/2W
R601	401H5737	R,CARBON 470K 5% 1/2W
⚠R5N5	401H5741	R,CARBON 680K 5% 1/2W
R603	401H5745	R,CARBON 1.0M 5% 1/2W
⚠R5E7 R524 R7F4	401J9820	R,CARBON 0.0H
R7F5 R8F9		
R50F R51C R54F	401K5601	R,CARBON 1H 5% 1/6W
R56X		
R5K6 R909	401K5633	R,CARBON 22H 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
R7C0 R7C1 R7C2	401K5639	R,CARBON 39H 5% 1/6W
R5N2	401K5641	R,CARBON 47H 5% 1/6W
R8D0	401K5643	R,CARBON 56H 5% 1/6W
R970	401K5647	R,CARBON 82H 5% 1/6W
⚠R2011 R408 R57E	401K5649	R,CARBON 100H 5% 1/6W
R59A R59C R59E		
R59F R59G R59W		
R662 R7A0 R7A1		
R7A2 R7G1 R750		
R751 R752 R910		
R966		
R719 R720 R721	401K5653	R,CARBON 150H 5% 1/6W
R722 R723 R724		
R760 R761 R762		
R110 R784 R785	401K5655	R,CARBON 180H 5% 1/6W
R786 R8E7		
R56S R615 R8F4	401K5657	R,CARBON 220H 5% 1/6W
R2102 R513 R802	401K5659	R,CARBON 270H 5% 1/6W
R56M R58C R7G0	401K5661	R,CARBON 330H 5% 1/6W
R7A3 R7A5 R7A7	401K5663	R,CARBON 390H 5% 1/6W
R781 R782 R783	401K5665	R,CARBON 470H 5% 1/6W
R8C6		
R596 R598 R8L3	401K5667	R,CARBON 560H 5% 1/6W
R121 R672 R756	401K5669	R,CARBON 680H 5% 1/6W
R757 R758 R8E6		
R8H0		
R775 R777 R779	401K5671	R,CARBON 820H 5% 1/6W
R1003 R111 R409	401K5673	R,CARBON 1.0K 5% 1/6W
R454 R455 R5A8		
⚠R5EA ⚠R5E4 ⚠R5E5		
R5W4 R5W5 R516		
R53L R535 R605		
R674 R738 R787		
R788 R789 R8K8		
R8K9 R810 R811		
R832 R857 R858		
R859 R86A R86C		
R871 R873 R877		
R878 R879 R880		
R882 R956 R957		
R511 R659 R8H6	401K5675	R,CARBON 1.2K 5% 1/6W
R8H8		

SYMBOL	PART NO	DESCRIPTION
R474 R5A7 R5D3	401K5677	R,CARBON 1.5K 5% 1/6W
R528 R657 R658		
R8G9 R8H2		
R5R5 R793 R971	401K5679	R,CARBON 1.8K 5% 1/6W
R1011 R407 R466	401K5681	R,CARBON 2.2K 5% 1/6W
R57K R7G2 R7G3		
R731 R732 R735		
R736 R737 R739		
R8C1 R8C2 R816		
R983		
R5A0 R5A4 R5A5	401K5683	R,CARBON 2.7K 5% 1/6W
⚠R5E0 R5U7 R8H7		
R801 R870 R876		
⚠R201G R411 R5X6	401K5685	R,CARBON 3.3K 5% 1/6W
R52F R59L R59S		
R59T R590 R595		
R597 R707 R709		
R711 R713 R715		
R717 R776 R778		
R780 R8G4 R8G5		
R8G6 R8G7 R8G8		
R8H1 R8H9 R8L0		
R8L1 R863 R872		
R965		
R463 R5K5 R5N0	401K5687	R,CARBON 3.9K 5% 1/6W
R50K R51K R52K		
R53K R54K R55K		
R58K R7A4 R7A6		
R7A8 R7G4 R8E0		
R8H5		
R1021 ⚠R201M R401	401K5689	R,CARBON 4.7K 5% 1/6W
R462 R5R4 R533		
R663 R763 R8K4		
R8K5 R866		
⚠R2006 R465 R5D2	401K5691	R,CARBON 5.6K 5% 1/6W
⚠R5E1 ⚠R5E9 R5Y4		
R520 R7C4 R7C6		
R7C8 R8E1 R8G0		
R8G2 R8K0 R8K1		
R8K2		
R120 ⚠R201H R5G1	401K5693	R,CARBON 6.8K 5% 1/6W
R5G5 R5K7 R5M0		

SYMBOL	PART NO	DESCRIPTION
R5N1 R5T6 R514	401K5693	R,CARBON 6.8K 5% 1/6W
R745 R8H4 R803		
R818		
R5H4 R7E2 R7E3	401K5695	R,CARBON 8.2K 5% 1/6W
R7E4 R8A9 R862		
R864 R869		
R1002 ⚠R2007 ⚠R201K	401K5697	R,CARBON 10K 5% 1/6W
⚠R2010 ⚠R2020 R403		
R464 R475 R5G2		
R5M8 R5S3 R5S4		
R5T1 R5T2 R5T4		
R5U0 R5U2 R5U3		
R5X1 R5X4 R5Y3		
R50M R504 R505		
R515 R526 R527		
R529 R53S R544		
R569 R652 R7E5		
R7E6 R7E7 R7F0		
R7F1 R7F2 R7F3		
R708 R710 R712		
R714 R716 R718		
R742 R744 R764		
R765 R766 R767		
R768 R769 R772		
R773 R774 R8A2		
R8A3 R8C0 R8C7		
R8F8 R805 R807		
R808 R809 R850		
R851 R852 R867		
R868 R874 R884		
R907 R913 R951		
R952 R979 R982		
R984 R987		
⚠R2013 R420 ⚠R5E2	401K5699	R,CARBON 12K 5% 1/6W
R5G4 R5R0 R5R7		
R512 R523 R59N		
R741 R743 R886		
R964		
R2104 R402 R421	401K5701	R,CARBON 15K 5% 1/6W
R5H0 R614 R670		
R8A5 R8A6 R8K3		
R817		
R5X7	401K5703	R,CARBON 18K 5% 1/6W

SYMBOL	PART NO	DESCRIPTION
⚠R201L R404 R445	401K5705	R,CARBON 22K 5% 1/6W
R5H5 R5M2 R5T7		
R5U9 R5W9 R522		
R613 R660 R730		
R734 R8A8 R8C3		
R8K6 R976 R978		
R424 R451 R5T3	401K5707	R,CARBON 27K 5% 1/6W
R5U6 R5Y6 R50T		
R52T R53T R54T		
R55T R58T R981		
R989		
⚠R2012 R2101 R423	401K5709	R,CARBON 33K 5% 1/6W
R5C4 R5D5 R5H8		
R5M6 ⚠R503 R509		
R531 R532 R534		
R568 R7D9 R7E0		
R7E1 R853 R854		
R855 R856 R885		
R955 R962		
R1001 ⚠R200A ⚠R200C	401K5711	R,CARBON 39K 5% 1/6W
⚠R201E R422 R482		
R837		
⚠R2009 R443 R5A3	401K5713	R,CARBON 47K 5% 1/6W
R5H2 R5H3 R5S8		
R5T0 R669 R7C3		
R7C5 R7C7 R806		
R914 R954 R980		
⚠R200F R436 R437	401K5715	R,CARBON 56K 5% 1/6W
R483 R5M7 R56G		
R56H R8F2 R958		
R960		
R450 R5Y5 ⚠R502	401K5717	R,CARBON 68K 5% 1/6W
R671		
R5H7 R5T8 R56T	401K5719	R,CARBON 82K 5% 1/6W
R59M R7D6 R7D7		
R7D8 R835		
⚠R2008 ⚠R201F R431	401K5721	R,CARBON 100K 5% 1/6W
R433 R434 R435		
R452 R453 R5G7		
R5S7 R5S9 R5U1		
R5U8 R5W2 R5W3		
R5X5 R56C R58H		

SYMBOL	PART NO	DESCRIPTION
R620 R8H3 R961	401K5721	R,CARBON 100K 5% 1/6W
R986		
R484 R5K3 R5M3	401K5723	R,CARBON 120K 5% 1/6W
R56A R56F R953		
R5S6 R56E R7D3	401K5725	R,CARBON 150K 5% 1/6W
R7D4 R7D5		
R50H R50L R8A7	401K5727	R,CARBON 180K 5% 1/6W
R5G8 R5W0 R7D0	401K5729	R,CARBON 220K 5% 1/6W
R7D1 R7D2 R8G1		
R8G3 R8K7		
R56W R836	401K5731	R,CARBON 270K 5% 1/6W
R5N7 R7F6 R7F7	401K5733	R,CARBON 330K 5% 1/6W
R7F8		
R438 R51H	401K5735	R,CARBON 390K 5% 1/6W
R5G3 R52H R912	401K5737	R,CARBON 470K 5% 1/6W
R959		
R53H R8C5	401K5743	R,CARBON 820K 5% 1/6W
R5G9 R5M5 R54H	401K5745	R,CARBON 1.0M 5% 1/6W
R8C8		
R55H	401K5747	R,CARBON 1.2M 5% 1/6W
R492 R908	401K5749	R,CARBON 1.5M 5% 1/6W
⚠R201D ⚠R210C R440	401K5753	R,CARBON 2.2M 5% 1/6W
R501	401K5757	R,CARBON 3.3M 5% 1/6W
⚠R5C1 ⚠R5C2	40175125	R,CARBON 10H 5% 1/4W
⚠R5M1	40175127	R,CARBON 12H 5% 1/4W
R611	40175145	R,CARBON 68H 5% 1/4W
R581 R582	40298004	R,WIRE 1.0H 1% 5W
R602	40298005	R,WIRE 15H 5% 7W
R8F6	403F1125	R,METAL OXIDE 10H 5% 1W
R8F7	403F1135	R,METAL OXIDE 27H 5% 1W
⚠R57T	403F1137	R,METAL 33H 5% 1W
R405	403F1165	R,METAL 470H 5% 1W
R5A6 ⚠R5E3	403F1173	R,METAL OXIED 1.0K 5% 1W
R5A1	403F1177	R,METAL OXIDE 1.5K 5% 1W
R410	403F2101	R,METAL 1.0H 5% 2W
R8F0	403F2103	R,METAL OXIDE 1.2H 5% 2W
R8F3	403F2109	R,METAL 2.2H 5% 2W
R8F5	403F2117	R,METAL OXIDE 4.7H 5% 2W
R883	403F2149	R,METAL OXIDE 100H 5% 2W
R7G5 R8E4 R8E5	403F2151	R,METAL OXIDE 120H 5% 2W

SYMBOL	PART NO	DESCRIPTION
R476 R477	403F2169	R,METAL OXIDE 680H 5% 2W
R519	403F2171	R,METAL 820H 5% 2W
R8F1	403F3137	R,METAL OXIDE 33H 5% 3W
R456 R457 R599	403F3141	R,METAL OXIDE 47H 5% 3W
R861	403F3159	R,METAL OXIDE 270H 5% 3W
R521	403F3163	R,METAL OXIDE 390H 5% 3W
⚠R5D6	403F3173	R,METAL OXIDE 1.0K 5% 3W
⚠R57V	403F3177	R,METAL OXIDE 1.5K 5% 3W
R967 R968	403F3209	R,METAL OXIDE 33K 5% 3W
R5D7	40318994	R,METAL 2.2K 5% 5W
R5G6	40371105	R,METAL 1.5H 5% 1W
R656	40372135	R,METAL 27H 5% 2W
R604	40372151	R,METAL 120H 5% 2W
R666	40372175	R,METAL 1.2K 5% 2W
R665	40372197	R,METAL 10K 5% 2W
R664	40372203	R,METAL 18K 5% 2W
R607	40372211	R,METAL 39K 5% 2W
R606	40372219	R,METAL 82K 5% 2W
R608	40372329	R,METAL 0.22H 5% 2W
R651 R654	40373135	R,METAL 27H 5% 3W
R610	40373141	R,METAL 47H 5% 3W
R616 R617	40373219	R,METAL 82K 5% 3W
R8E8	40399049	R,METAL 82H 5% 3W
R701 R702 R703	404C1646	R,METAL 75H 1% 1/6W
R704 R705 R706		
R795 R796 R797	404C1653	R,METAL 150H 1% 1/6W
R50C	404C1675	R,METAL 1.2K 1% 1/6W
⚠R2018	404C1677	R,METAL 1.5K 1% 1/6W
R58F	404C1681	R,METAL 2.2K 1% 1/6W
R122 R537 R661	404C1683	R,METAL 2.7K 1% 1/6W
R5A2	404C1685	R,METAL 3.3K 1% 1/6W
R51F R58A R653	404C1689	R.METAL 4.7K 1% 1/6W
R123	404C1691	R,METAL 5.6K 1% 1/6W
R52C	404C1695	R,METAL 8.2K 1% 1/6W
⚠R2019 R5X0 R50A	404C1697	R,METAL 10K 1% 1/6W
R56R R729 R8E2		
R8E3 R840 R843		
R846 R849		
R472 R53C R58G	404C1699	R,METAL 12K 1% 1/6W
R5F4 R5S5 R50G	404C1703	R,METAL 18K 1% 1/6W

SYMBOL			PART NO	DESCRIPTION
R536	R576	R579	404C1703	R,METAL 18K 1% 1/6W
R51G	R53F	R538	404C1705	R,METAL 22K 1% 1/6W
R573	R577			
R447	R51A	R54C	404C1707	R,METAL 27K 1% 1/6W
R52G	R55C		404C1709	R,METAL 33K 1% 1/6W
R5U4	R5U5		404C1710	R,METAL 36K 1% 1/6W
R425	R52A	R53G	404C1711	R,METAL 39K 1% 1/6W
R55F				
R429	R471	R5S0	404C1713	R,METAL 47K 1% 1/6W
R5X2	R5X3	R56L	404C1715	R,METAL 56K 1% 1/6W
R572				
R426	R510	R57A	404C1717	R,METAL 68K 1% 1/6W
R473			404C1719	R,METAL 82K 1% 1/6W
⚠R2001	R430	R442	404C1721	R,METAL 100K 1% 1/6W
R5F3	R5F8	R5S1		
R5S2	R5X9	R5Y1		
R5Y2	R50E	⚠R507		
R51E	R52E	R53A		
R53E	R54E	R54G		
R55E	R56K	R58E		
R838	R841	R844		
R847				
R446	R55G	R574	404C1723	R,METAL 120K 1% 1/6W
R839	R842	R845	404C1724	R,METAL 130K 1% 1/6W
R848				
R428	R5N9	R54A	404C1725	R,METAL 150K 1% 1/6W
R5X8	R508		404C1727	R,METAL 180K 1% 1/6W
R506	R55A	R571	404C1729	R,METAL 220K 1% 1/6W
R575				
R427			404C1731	R,METAL 270K 1% 1/6W
R441			404C1739	R,METAL 560K 1% 1/6W
R444			404C1743	R,METAL 820K 1% 1/6W
R439			404C1745	R,METAL 1.0M 1% 1/6W
⚠R5C3	⚠R5D1	⚠R5F9	404K5109	R,METAL 2.2H 5% 1/4W
⚠R57H	⚠R570			
R461	⚠R591		404K5117	R,METAL 4.7H 5% 1/4W
⚠R481	R5F2	⚠R860	404K5125	R,METAL 10H 5% 1/4W
⚠R5F0	⚠R57F	⚠R57L	404K5141	R,METAL 47H 5% 1/4W
⚠R5R8			40405125	R,METAL 10H 5% 1/4W
⚠R5N3			408A8109	R,FUSE 2.2H 5% 1/2W
⚠R592	⚠R593	⚠R594	408A8157	R,FUSE 220H 5% 1/2W

SYMBOL			PART NO	DESCRIPTION
⚠R57G			409A6149	R,FUSE 100H 5% 1/4W

*** CAPACITORS ***

SYMBOL			PART NO	DESCRIPTION
C903			420C9551	C,CERAMIC 500V 100PF
C481	C5G8	⚠C591	420C9563	C,CERAMIC 500V 1000PF
⚠C592	⚠C593	C7A6		
C7A7	C7A8	C904		
C574			420C9567	C,CERAMIC 500V 2200PF
C7E9	C796	C797	420C9569	C,CERAMIC 50V 3300PF
C798				
C901			4203J575	C,CERAMIC 500V 0.01UF
C905			42040108	C,CERAMIC 2KV 0.01UF
C603	C604		42053069	C,CERAMIC 400V 3300PF
C609	C617		42053071	C,CERAMIC 400V 4700PF
C658			42099086	C,CERAMIC 2KV 1000PF
C611	C618		42099088	C,CERAMIC 2KV 220PF
C651	C655		42099095	C,CERAMIC 2KV 330PF
C607	C614		42099096	C,CERAMIC 2KV 470PF
C451	C518	C521	421A0425	C,CERAMIC 50V 0.01UF
C530	C57A	C810		
C811				
C86A	C86C		421CC461	C,CERAMIC 16V 0.01UF
C5R1			421C0205	C,CERAMIC 50V 220PF
C401	C762	C763	421C0213	C,CERAMIC 50V 1000PF
C764	C777	C778		
C779	C8A9	C867		
C737	C738	C739	421C0219	C,CERAMIC 50V 3300PF
C5G1	C7D4	C7D5	421C0225	C,CERAMIC 50V 0.01UF
C7D6	C707	C708		
C709	C710	C711		
C712	C718	C719		
C720	C759	C760		
C761	C768	C769		
C770	C784	C785		
C786	C790	C791		
C792				
C86A	C86C		421C3461	C,CERAMIC 16V 0.01UF
C5S1	C5S8	C5S9	421D6009	C,CERAMIC 25V 0.1UF
C5T0	C5T1	C5T2		
C5X0	C504	C59E		
C59F	C59G	C59H		

SYMBOL			PART NO	DESCRIPTION
C59K	C59M	C7E5	421D6009	C,CERAMIC 25V 0.1UF
C7E6	C7E7	C7E8		
C7F0	C7F1	C7F2		
C714	C716	C753		
C754	C755	C8A8		
C8H7	C8K3	C8K4		
C8K7	C8K8	C8K9		
C802	C826	C827		
C829	C830	C834		
C835	C864	C865		
C868	C869	C870		
C958	C965			
C200P	C2021	C406	421D6013	C,CERAMIC 50V 0.1UF
C47P	C471	C5A5		
C5EP	C50A	C50R		
C50S	C507	C51C		
C51P	C56A	C56C		
C57P	C8C7	C8C8		
C5X1			421J9036	C,CERAMIC 25V 0.1UF
C8A1			423A1028	C,CERAMIC 50V 20PF
C509	C717		423A1045	C,CERAMIC 50V 100PF
C5G3	C8G9	C8K0	423A1057	C,CERAMIC 50V 330PF
C8K1	C8K2			
C616			423A1100	C,CERAMIC 50V 390PF
C5G5	C5M0	C8K5	423A1101	C,CERAMIC 50V 470PF
C962				
C959			423A1103	C,CERAMIC 50V 560PF
C5EE	C7D1	C7D2	423A2015	C,CERAMIC 50V 10PF
C7D3	C804	C805		
C820			423A2025	C,CERAMIC 50V 15PF
C5G0	C506		423A2033	C,CERAMIC 50V 33PF
C787	C788	C789	423A2035	C,CERAMIC 50V 39PF
⚠C5E2			423A2037	C,CERAMIC 50V 47PF
C781	C782	C783	423A2041	C,CERAMIC 50V 68PF
C529	C549	C966	423A2045	C,CERAMIC 50V 100PF
C5M5	C502	C510	423A2103	C,CERAMIC 50V 180PF
C511			423A2105	C,CERAMIC 50V 270PF
C515			427A7005	C,FILM 100V 0.0022UF
C8A6			427F4004	C,FILM 50V 1800PF
C8A7	C8H0		427F4009	C,FILM 50V 4700PF
C8A5	C951	C957	427F4013	C,FILM 50V 0.01UF

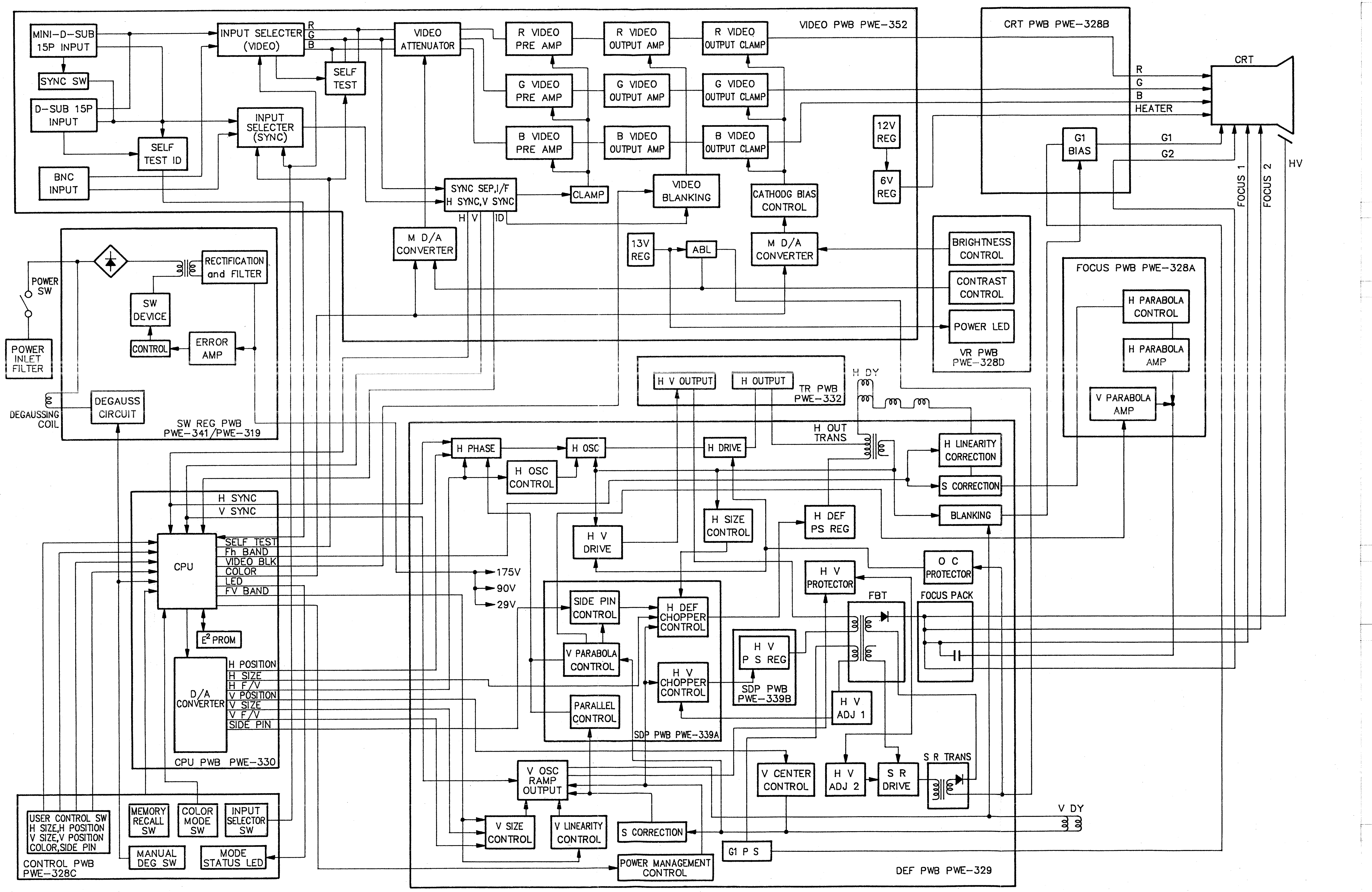
SYMBOL			PART NO	DESCRIPTION
C5G2			427F4601	C,FILM 50V 1000PF
C513			427F4603	C,FILM 50V 1500PF
C8D0			427F4605	C,FILM 50V 2200PF
C520			427F4610	C,FILM 50V 5600PF
C412			427F4611	C,FILM 50V 6800PF
C5EA	⚠C5E6	C500	427F4613	C,FILM 50V 0.01UF
C59N				
C516			427F4614	C,FILM 50V 0.012UF
C5G6	C5H7	C5H8	427F4621	C,FILM 50V 0.047UF
C5M4	C5M8			
C661			427F4624	C,FILM 50V 0.082UF
C5M2			427F4625	C,FILM 50V 0.1UF
C512	C578		427F4651	C,FILM 50V 1000PF
⚠C5D2			427F4659	C,FILM 50V 4700PF
C955	C956	C963	427F4675	C,FILM 50V 0.1UF
C5A2	C5A3		427J9112	C,FILM 50V 1000PF
⚠C5D1			42703455	C,FILM 630V 2200PF
⚠C577			42703575	C,FILM 200V 0.1UF
C664			42799057	C,FILM 100V 3300PF
C441	C442	C606	428B3013	C,METAL FILM 50V 0.1UF
C662	C8G0	C8G2		
C402	⚠C5D3		428B3021	C,METAL FILM 50V 0.47UF
C50C	C8A2	C8D1	428B3025	C,METAL FILM 50V 1.0UF
C613			428B3101	C,METAL FILM 50V 0.010UF
⚠C5E8	C5GE		428CJ022	C,METAL FILM 250V 0.1UF
C666	C667		428D0053	C,METAL 100V 0.1UF
C7A0	C7A1	C7A2	428D0097	C,FILM 250V 0.22UF
C907				
C409			428D4317	C,METAL FILM 100V 0.22UF
⚠C5A8	C964		428JJ115	C,METAL 1000V 0.047UF
C960			42808501	C,METAL FILM 1.6KV 1000PF
C654			42809001	C,METAL FILM 100V 0.01UF
⚠C581			42817101	C,METAL 1600V 1500PF
⚠C5A6			42817102	C,METAL FILM 2.0KV 1900PF
⚠C582			42817201	C,METAL 1600V 6200PF
⚠C599			42839601	C,METAL 400V 0.1UF
⚠C59A			42839602	C,METAL 400V 0.12UF
⚠C598			42839606	C,METAL 400V 0.24UF
⚠C597			42839615	C,METAL 400V 0.68UF 5%
⚠C595	⚠C596		42839631	C,METAL FILM 400V 0.6UF

SYMBOL	PART NO	DESCRIPTION
⚠C59C	42839708	C,METAL 400V 0.33UF 5%
C610	42840225	C,METAL 630V 0.022UF
C601	42898002	C,FILM AC250V 0.47UF
C602 C619	42899098	C,FILM 250V 0.1UF
C7C6	430BJ518	C,ELEC 160V 33UF
C771 C772 C773	430B3104	C,ELEC 50V 3.3UF
C1001	430B6016	C,ELEC 10V 100UF
C801	430B6017	C,ELEC 10V 220UF
⚠C2004 ⚠C2006 C733	430B6029	C,ELEC 16V 100UF
C734 C735 C969		
C5S6 C5S7 C508	430B6030	C,ELEC 16V 220UF
C724 C725 C726	430B6032	C,ELEC 16V 470UF
C736		
C5G9	430B6039	C,ELEC 25V 22UF
⚠C2002 C472 C5A1	430B6041	C,ELEC 25V 47UF
C5S4 C5S5 C5X2		
C57C C722 C741		
C780 C8H8		
C461	430B6054	C,ELEC 35V 100UF
C8L0	430B6060	C,ELEC 50V 0.47UF
C517 C8H9	430B6061	C,ELEC 50V 1.0UF
C8H3	430B6062	C,ELEC 50V 2.2UF
C5S2	430B6063	C,ELEC 50V 3.3UF
C5H0 C5H1 C5X3	430B6064	C,ELEC 50V 4.7UF
C501 C8G8 C8H2		
C8H6		
C462 ⚠C5E0 C5H2	430B6065	C,ELEC 50V 10UF
C5M7 C7E0 C7E1		
C7E2 C727 C728		
C729 C730 C731		
C732 C756 C757		
C758 C8G4 C8H5		
C8K6 C871		
⚠C2008 C5C0 C5GC	430B6066	C,ELEC 50V 22UF
C572		
⚠C5E9	430B6068	C,ELEC 50V 47UF
C571	430B6069	C,ELEC 50V 100UF
C590	430B6096	C,ELEC 100V 3.3UF
C482	430B6536	C,ELEC 200V 10UF
C833	430B8135	C,ELEC 10V 220UF
C713 C715	430B8144	C,ELEC 16V 47UF

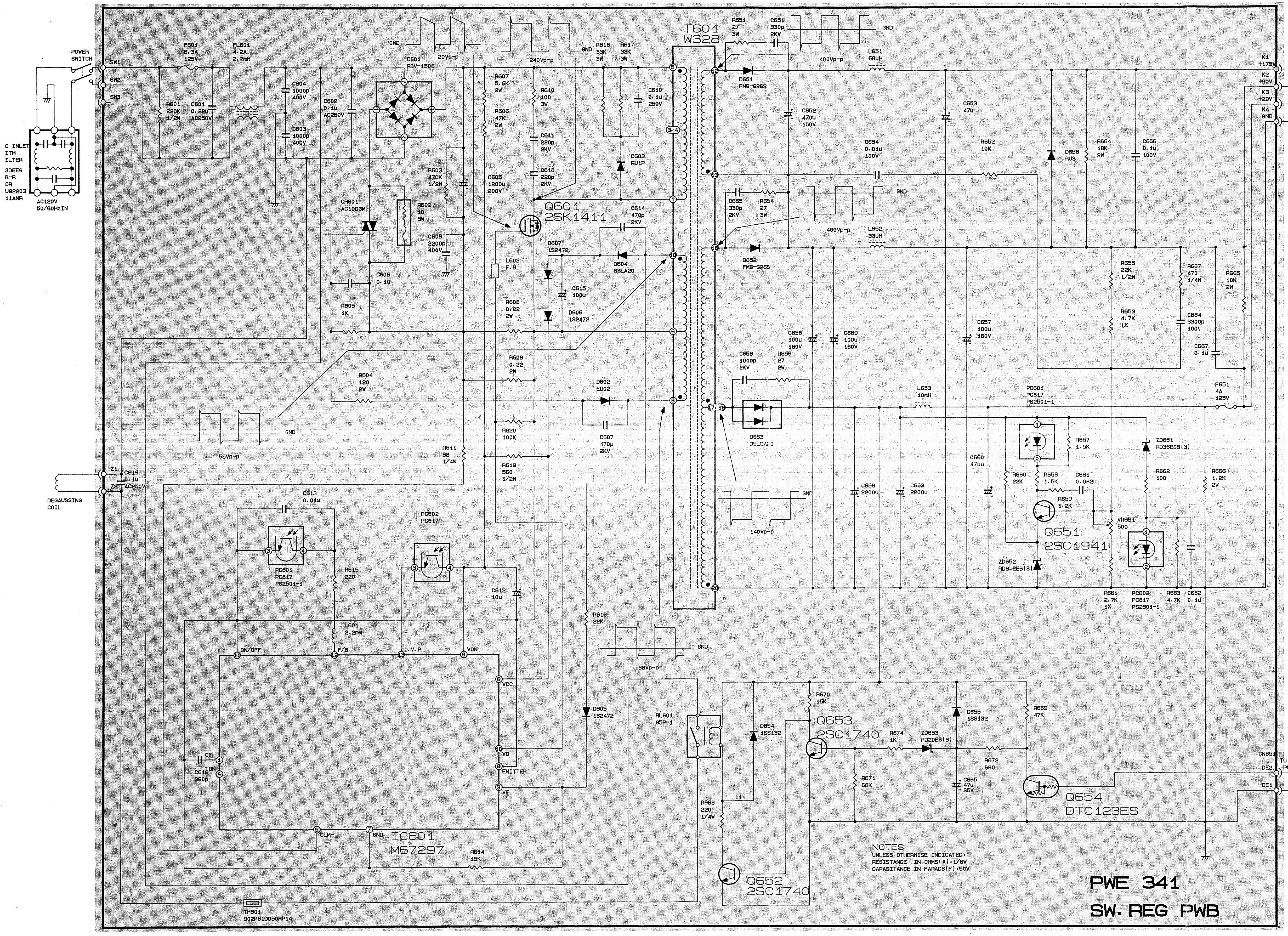
SYMBOL	PART NO	DESCRIPTION
C803	430B8152	C,ELEC 25V 10UF
⚠C5GA	430B8180	C,ELEC 50V 22UF
C863	430B9016	C,ELEC 10V 100UF
C503 C8C9 C831	430B9017	C,ELEC 10V 220UF
C861 C967 C968	430B9025	C,ELEC 16V 10UF
C765 C766 C767	430B9026	C,ELEC 16V 22UF
C952 C953 C961	430B9028	C,ELEC 16V 47UF
C8C3	430B9031	C,ELEC 16V 330UF
C750 C751 C752	430B9032	C,ELEC 16V 470UF
⚠C5E7	430B9039	C,ELEC 25V 22UF
C5A4 C862	430B9041	C,ELEC 25V 47UF
C665	430B9053	C,ELEC 35V 47UF
C411	430B9054	C,ELEC 35V 100UF
C660	430B9057	C,ELEC 35V 470UF
C408	430B9061	C,ELEC 50V 1.0UF
⚠C5E3 C612	430B9065	C,ELEC 50V 10UF
C2101 ⚠C5E4 C5G4	430B9066	C,ELEC 50V 22UF
C5M1		
C615	430B9069	C,ELEC 50V 100UF
C407	430B9070	C,ELEC 50V 220UF
C405	430B9071	C,ELEC 50V 330UF
C7A3 C7A4 C7A5	430B9512	C,ELEC 160V 1.0UF
C793 C794 C795	430B9513	C,ELEC 160V 2.2UF
C5G7 ⚠C59L C7D7	430B9552	C,ELEC 250V 1.0UF
C832	430C0253	C,ELEC 25V 22UF
C8C1 C8C2	430C2105	C,ELEC 25V 470UF
⚠C5F1	430C6635	C,ELEC 160V 33UF
C774 C775 C776	430C8423	C,ELEC 16V 470UF
C491	430C9154	C,ELEC 350V 3.3UF
C8C5	430J8109	C,ELEC 16V 47UF
C659 C663	4302J059	C,ELEC 35V 2200UF
C653	4302J559	C,ELEC 250V 47UF
C410	4303D183	C,ELEC 50V 1000UF
C5A9 C5M6 C5M9	4303J222	C,ELEC 250V 2.2UF
C5H6	4303J224	C,ELEC 250V 4.7UF
C8A3 C8A4	43032175	C,ELEC 50V 220UF
C656 C657 C669	4304A013	C,ELEC 160V 100UF
C5H9	4309H105	C,ELEC 200V 4.7UF
⚠C5E5	4309H106	C,ELEC 250V 22UF

SYMBOL	PART NO	DESCRIPTION
C652	43099174	C,ELEC 100V(HV) 470UF
C605	43109493	C,ELEC 400V 470UF
C583	43198002	C,ELEC 200V 47UF
C8C4	432K6011	C,ELEC 10V 220UF
C8F0	432K6208	C,ELEC 63V 33UF
C8H4	433A3058	C,ELEC 50V 4.7UF
⚠C5MC	433A4025	C,ELEC 16V 47UF
C5S3	433A4033	C,ELEC 25V 10UF
C8G1 C8G3 C8H1	433A4056	C,ELEC 50V 2.2UF
C7C0 C7C1 C7C2	433A6045	C,ELEC 16V 22UF
C7C3 C7C4 C7C5		
C701 C702 C703		
C704 C705 C706		
C5EC	433A7013	C,ELEC 16V 47UF
C866	433A7031	C,ELEC 35V 4.7UF
C514	435A8307	C,TANTALUM 35V 1.0UF

JC-1741UMA-3, (N)/B-3/B-3 (EE)/R-3 BLOCK DIAGRAM


MINI-D-SUB 15P INPUT
SYNC SW
D-SUB 15P INPUT
BNC INPUT
SELF TEST ID
INPUT SELECTER (VIDEO)
R
G
B
INPUT SELECTER (SYNC)
SELF TEST
VIDEO ATTENUATOR
R VIDEO PRE AMP
G VIDEO PRE AMP
B VIDEO PRE AMP
R VIDEO OUTPUT AMP
G VIDEO OUTPUT AMP
B VIDEO OUTPUT AMP
R VIDEO OUTPUT CLAMP
G VIDEO OUTPUT CLAMP
B VIDEO OUTPUT CLAMP
VIDEO PWB PWE-352
SYNC SEP,I/F
H SYNC,V SYNC
H
V
ID
CLAMP
VIDEO BLANKING
CATHODG BIAS CONTROL
12V REG
6V REG
M D/A CONVERTER
13V REG
ABL
M D/A CONVERTER
BRIGHTNESS CONTROL
CONTRAST CONTROL
POWER LED
VR PWB PWE-328D
CRT PWB PWE-328B
G1 BIAS
CRT
R
G
B
HEATER
G1
G2
FOCUS 1
FOCUS 2
HV
FOCUS PWB PWE-328A
H PARABOLA CONTROL
H PARABOLA AMP
V PARABOLA AMP
POWER SW
POWER INLET FILTER
RECTIFICATION and FILTER
SW DEVICE
CONTROL
ERROR AMP
DEGAUSSING COIL
DEGAUSS CIRCUIT
SW REG PWB PWE-341/PWE-319
H V OUTPUT
H OUTPUT
TR PWB PWE-332
H DY
H OUT TRANS
H LINEARITY CORRECTION
S CORRECTION
BLANKING
H PHASE
H OSC
H DRIVE
H OSC CONTROL
H V DRIVE
H SIZE CONTROL
H DEF PS REG
H V PROTECTOR
O C PROTECTOR
FBT
FOCUS PACK
175V
90V
29V
SIDE PIN CONTROL
H DEF CHOPPER CONTROL
V PARABOLA CONTROL
H V CHOPPER CONTROL
PARALLEL CONTROL
SDP PWB PWE-339A
H V P S REG
SDP PWB PWE-339B
H V ADJ 1
H V ADJ 2
S R DRIVE
S R TRANS
V CENTER CONTROL
V OSC RAMP OUTPUT
V SIZE CONTROL
V LINEARITY CONTROL
S CORRECTION
G1 P S
V DY
POWER MANAGEMENT CONTROL
DEF PWB PWE-329
H SYNC
V SYNC
CPU
SELF TEST
Fh BAND
VIDEO BLK
COLOR
LED
FV BAND
E² PROM
D/A CONVERTER
H POSITION
H SIZE
H F/V
V POSITION
V SIZE
V F/V
SIDE PIN
CPU PWB PWE-330
USER CONTROL SW
H SIZE,H POSITION
V SIZE,V POSITION
COLOR,SIDE PIN
MEMORY RECALL SW
COLOR MODE SW
INPUT SELECTOR SW
MANUAL DEG SW
MODE STATUS LED
CONTROL PWB PWE-328C

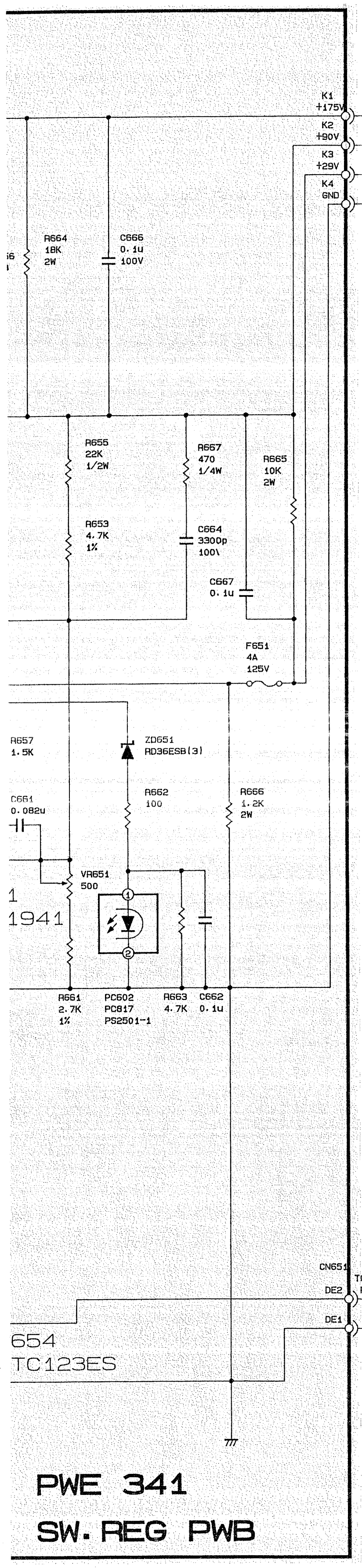
MODEL JC-1741UMA-3, (N) SW. REG. PWB
SCHEMATIC DIAGRAM

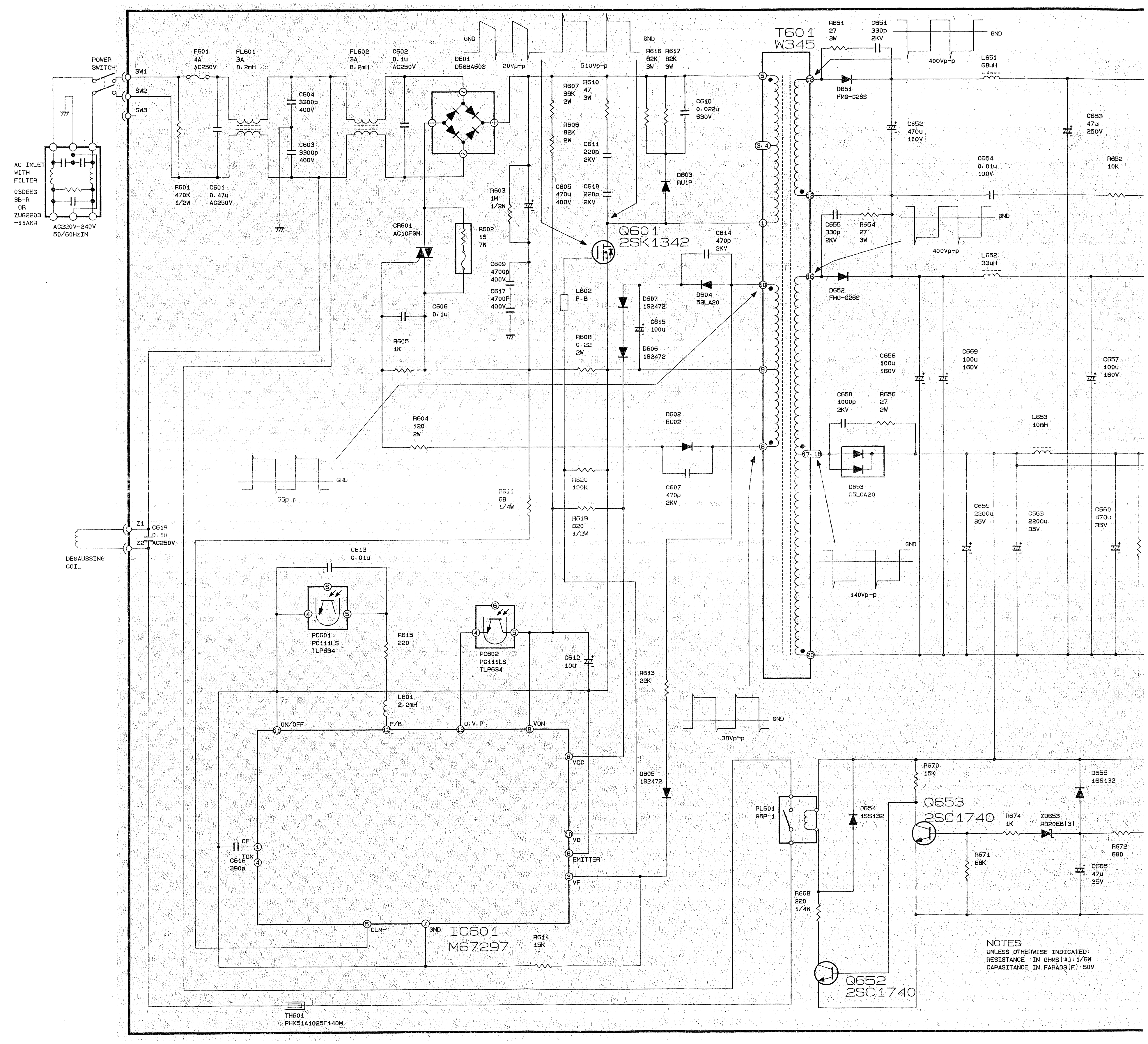

POWER SWITCH
SW1
SW2
SW3
C INLET
ITH
ILTER
3DEEG
B-R
OR
UG2203
11ANR
AC120V
50/60HzIN
F601
6.3A
125V
FL601
4.2A
2.7mH
R601
220K
1/2W
C601
0.22u
AC250V
C604
1000p
400V
C603
1000p
400V
C602
0.1u
AC250V
D601
RBV-1506
20Vp-p
GND
240Vp-p
R607
5.6K
2W
R606
47K
2W
R610
100
3W
C611
220p
2KV
C618
220p
2KV
R616
33K
3W
R617
33K
3W
C610
0.1u
250V
D603
RU1P
R603
470K
1/2W
C605
1200u
200V
CR601
AC10DGM
R602
10
5W
C609
2200p
400V
Q601
2SK1411
C614
470p
2KV
D607
1S2472
D604
S3LA20
L602
F.B
C615
100u
D606
1S2472
C606
0.1u
R605
1K
R608
0.22
2W
R609
0.22
2W
R604
120
2W
D602
EU02
C607
470p
2KV
55Vp-p
GND
R620
100K
R619
560
1/2W
R611
68
1/4W
Z1
Z2
C619
0.1u
AC250V
DEGAUSSING COIL
C613
0.01u
PC601
PC817
PS2501-1
PC602
PC817
R615
220
C612
10u
R613
22K
L601
2.2mH
38Vp-p
GND
ON/OFF
F/B
O.V.P
VON
VCC
CF
ION
C616
390p
VO
EMITTER
VF
CLM-
GND
IC601
M67297
R614
15K
D605
1S2472
TH601
902P81D050MP14
T601
W328
R651
27
3W
C651
330p
2KV
400Vp-p
GND
L651
68uH
D651
FMG-G26S
C652
470u
100V
C653
47u
C654
0.01u
100V
R652
10K
D656
RU3
R664
18K
2W
C666
0.1u
100V
C655
330p
2KV
R654
27
3W
GND
400Vp-p
L652
33uH
D652
FMG-G26S
R655
22K
1/2W
R667
470
1/4W
R665
10K
2W
R653
4.7K
1%
C664
3300p
100V
C667
0.1u
C656
100u
160V
C669
100u
160V
C657
100u
160V
C658
1000p
2KV
R656
27
2W
D653
D5LC40
L653
10mH
PC601
PC817
PS2501-1
F651
4A
125V
R657
1.5K
ZD651
RD36ESB(3)
R660
22K
R658
1.5K
C661
0.082u
R659
1.2K
R662
100
R666
1.2K
2W
C660
470u
C659
2200u
C663
2200u
140Vp-p
GND
Q651
2SC1941
VR651
500
ZD652
RD8.2EB(3)
R661
2.7K
1%
PC602
PC817
PS2501-1
R663
4.7K
C662
0.1u
K1
+175V
K2
+90V
K3
+29V
K4
GND
TO DEF PWB 'K'
R670
15K
Q653
2SC1740
D655
1SS132
R669
47K
RL601
65P-1
D654
1SS132
R674
1K
ZD653
RD20EB(3)
R672
680
R671
68K
C665
47u
35V
R668
220
1/4W
Q654
DTC123ES
Q652
2SC1740
CN651
DE2
DE1
TO CONTROL PWB 'DE'

NOTES
UNLESS OTHERWISE INDICATED:
RESISTANCE IN OHMS(Ω):1/6W
CAPASITANCE IN FARADS(F):50V

PWE 341
SW.REG PWB

MODEL JC-17341UMB-3/B-3(EE)/R-3 SW. REG. PWB
SCHEMATIC DIAGRAM

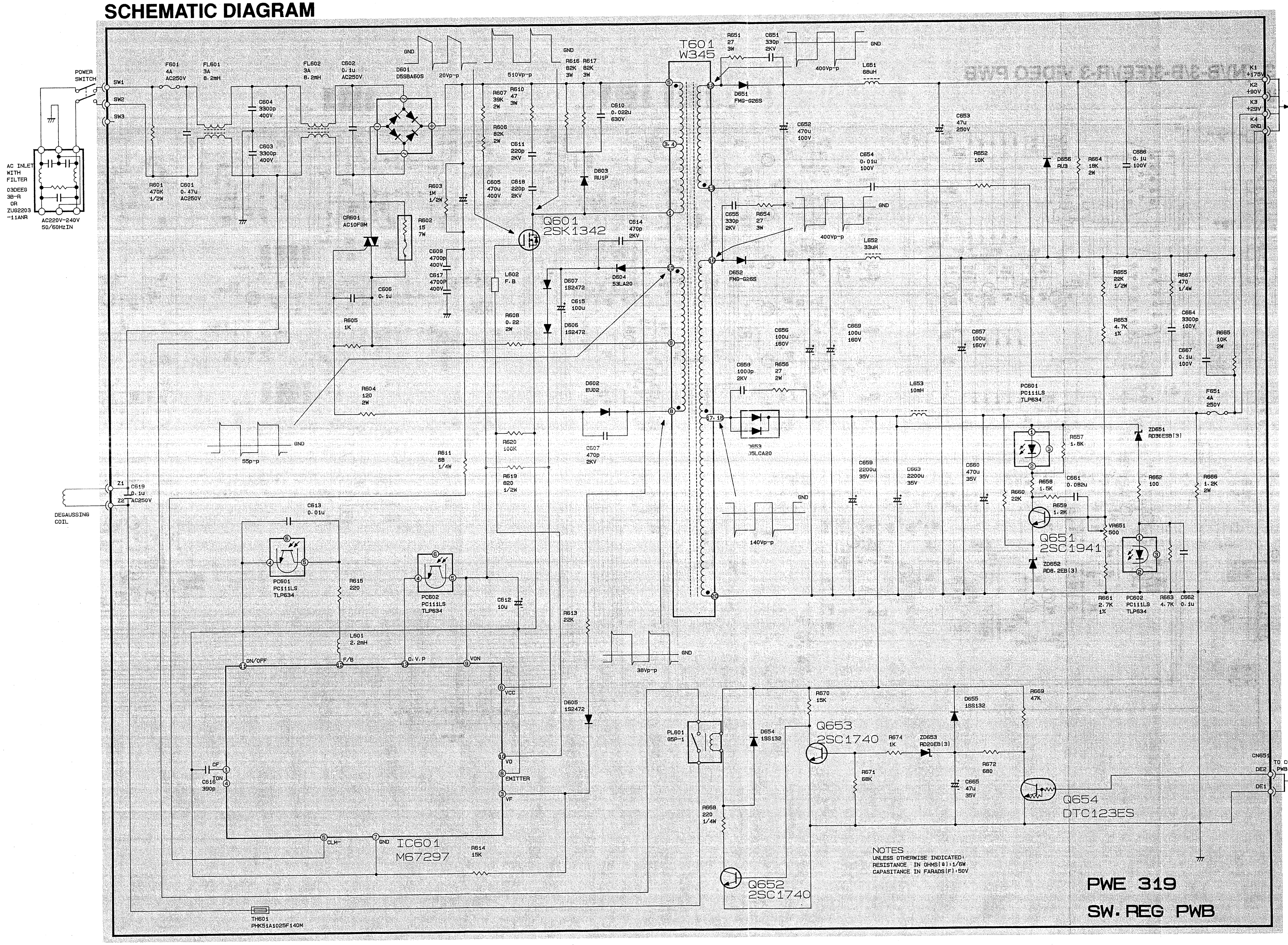

K1 +175V
K2 +90V
K3 +29V
K4 GND
TO DEF PWB 'K'
R664 18K 2W
C666 0.1u 100V
R655 22K 1/2W
R667 470 1/4W
R665 10K 2W
R653 4.7K 1%
C664 3300p 100V
C667 0.1u
F651 4A 125V
R657 1.5K
ZD651 RD36ESB(3)
R662 100
R666 1.2K 2W
C661 0.082u
VR651 500
1941
R661 2.7K 1%
PC602 PC817 PS2501-1
R663 4.7K
C662 0.1u
CN651
DE2
DE1
TO CONTROL PWB 'DE'
654
TC123ES
PWE 341
SW. REG PWB


POWER SWITCH
SW1
SW2
SW3
AC INLET WITH FILTER
03DEES 3B-R OR ZUG2203 -11ANR
AC220V-240V 50/60HzIN
F601 4A AC250V
FL601 3A 8.2mH
FL602 3A 8.2mH
C602 0.1u AC250V
D601 D5SBA60S
20Vp-p
510Vp-p
GND
R616 82K 3W
R617 82K 3W
C610 0.022u 630V
C604 3300p 400V
C603 3300p 400V
R601 470K 1/2W
C601 0.47u AC250V
R607 39K 2W
R610 47 3W
R606 82K 2W
C611 220p 2KV
C605 470u 400V
C618 220p 2KV
D603 RU1P
R603 1M 1/2W
CR601 AC10FGM
R602 15 7W
Q601 2SK1342
C614 470p 2KV
C609 4700p 400V
C617 4700P 400V
L602 F.B
D607 1S2472
D604 53LA20
C615 100u
C606 0.1u
R608 0.22 2W
D606 1S2472
R605 1K
R604 120 2W
D602 EU02
55p-p
GND
R611 68 1/4W
R620 100K
R619 820 1/2W
C607 470p 2KV
Z1
Z2
C619 0.1u AC250V
DEGAUSSING COIL
C613 0.01u
PC601 PC111LS TLP634
R615 220
PC602 PC111LS TLP634
C612 10u
R613 22K
L601 2.2mH
ON/OFF
F/B
O.V.P
VON
VCC
VO
EMITTER
VF
CF
TON
C616 390p
CLM-
GND
IC601 M67297
R614 15K
D605 1S2472
TH601 PHK51A1025F140M
T601 W345
R651 27 3W
C651 330p 2KV
400Vp-p
L651 68uH
D651 FMG-G26S
C652 470u 100V
C653 47u 250V
C654 0.01u 100V
R652 10K
C655 330p 2KV
R654 27 3W
L652 33uH
D652 FMG-G26S
C656 100u 160V
C669 100u 160V
C657 100u 160V
C658 1000p 2KV
R656 27 2W
L653 10mH
D653 D5LCA20
C659 2200u 35V
C663 2200u 35V
C660 470u 35V
140Vp-p
38Vp-p
PL601 G5P-1
D654 1SS132
R670 15K
Q653 2SC1740
R674 1K
ZD653 RD20EB(3)
D655 1SS132
R672 680
R671 68K
C665 47u 35V
R668 220 1/4W
Q652 2SC1740
NOTES
UNLESS OTHERWISE INDICATED:
RESISTANCE IN OHMS(Ω):1/6W
CAPASITANCE IN FARADS(F):50V

MODEL JC-17341UMB-3/B-3(EE)/R-3 SW. REG. PWB
SCHEMATIC DIAGRAM

⚠

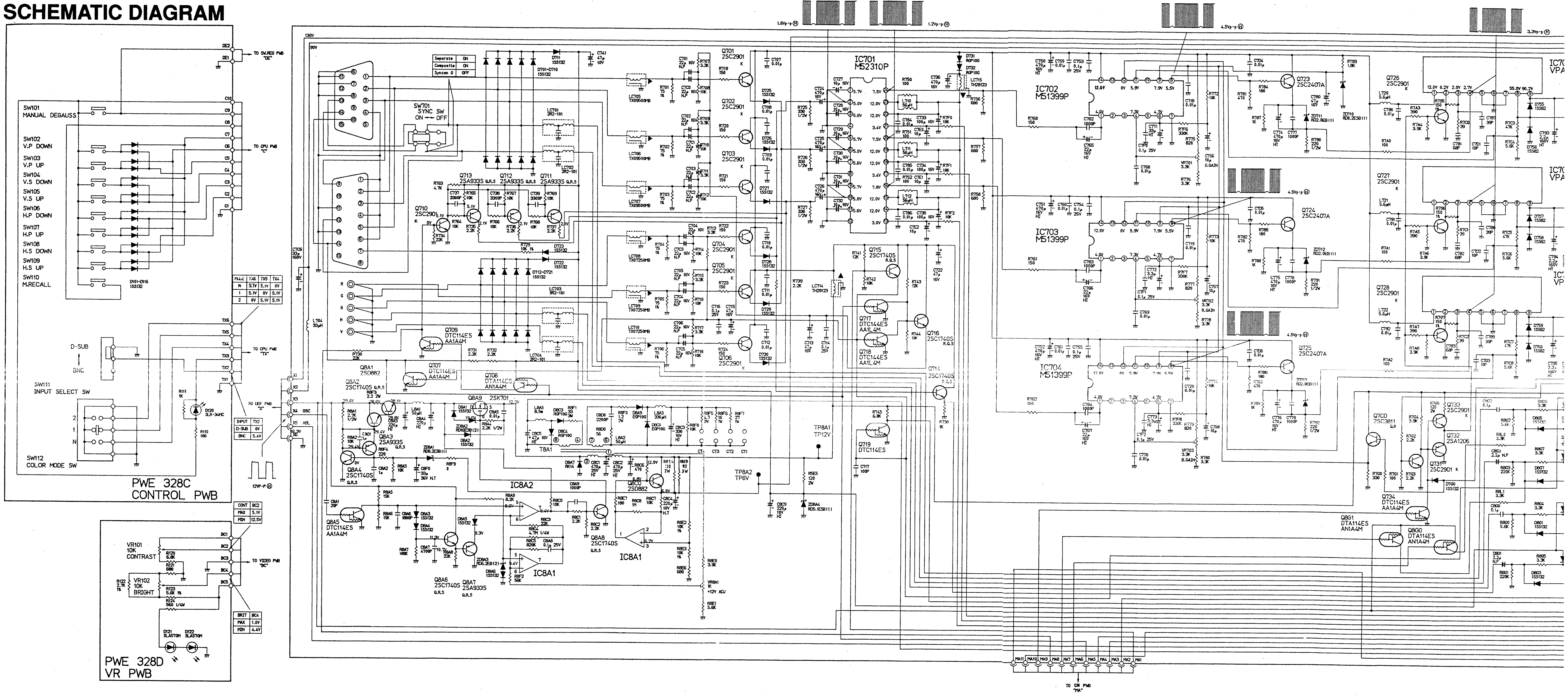
RUN No. 1

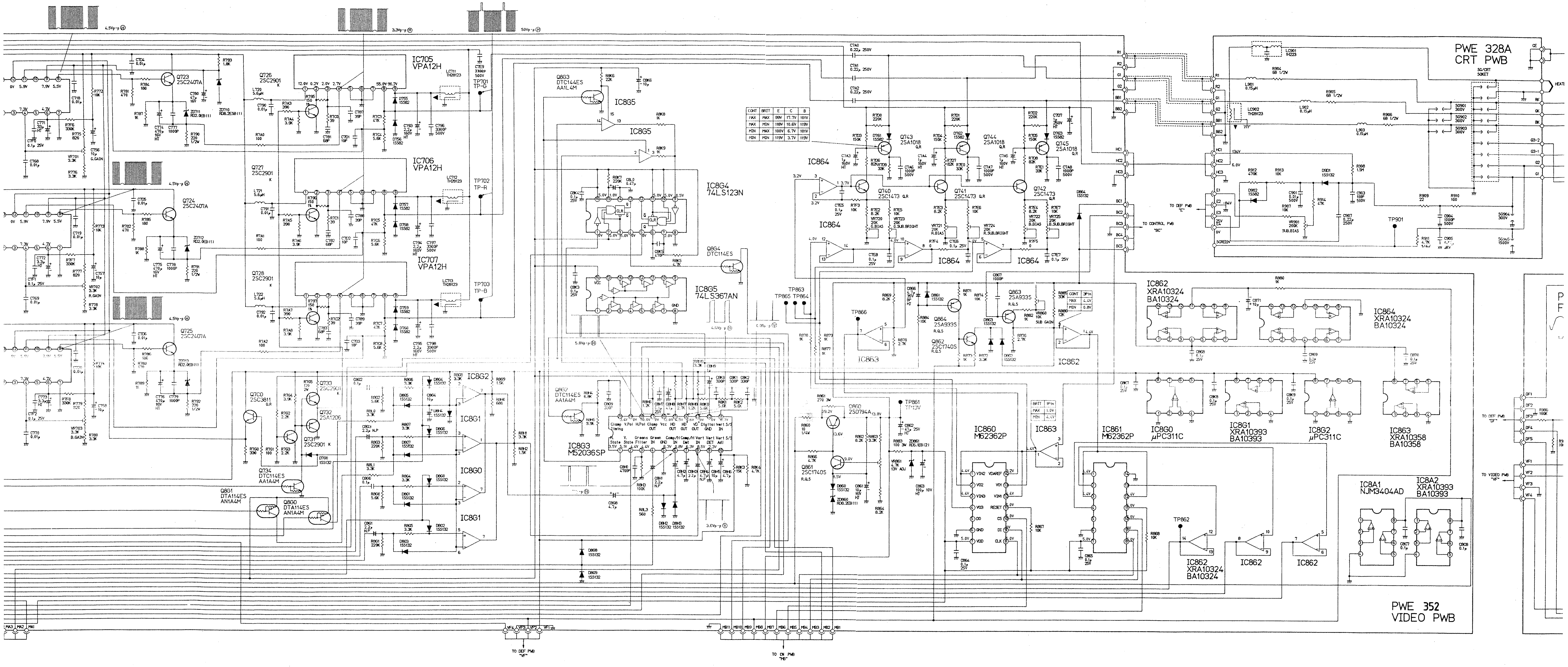

POWER SWITCH
SW1
SW2
SW3
AC INLET WITH FILTER
03DEEG 3B-R OR ZUG2203 -11ANR
AC220V-240V 50/60HzIN
F601 4A AC250V
FL601 3A 8.2mH
R601 470K 1/2W
C601 0.47u AC250V
C604 3300p 400V
C603 3300p 400V
FL602 3A 8.2mH
C602 0.1u AC250V
D601 D5SBA60S
20Vp-p
510Vp-p
GND
R616 82K 3W
R617 82K 3W
R607 39K 2W
R610 47 3W
R606 82K 2W
C610 0.022u 630V
C611 220p 2KV
C605 470u 400V
C618 220p 2KV
D603 RU1P
R603 1M 1/2W
CR601 AC10FGM
R602 15 7W
Q601 2SK1342
C614 470p 2KV
C609 4700p 400V
C617 4700P 400V
C606 0.1u
L602 F.B
D607 1S2472
D604 53LA20
C615 100u
R605 1K
R608 0.22 2W
D606 1S2472
R604 120 2W
D602 EU02
55p-p
R620 100K
C607 470p 2KV
R611 68 1/4W
R619 820 1/2W
Z1
Z2
C619 0.1u AC250V
DEGAUSSING COIL
C613 0.01u
PC601 PC111LS TLP634
R615 220
PC602 PC111LS TLP634
C612 10u
R613 22K
L601 2.2mH
ON/OFF
F/B
O.V.P
VON
VCC
VO
EMITTER
VF
CF
ION
C616 390p
CLM-
GND
IC601 M67297
R614 15K
TH601 PHK51A1025F140M
D605 1S2472
38Vp-p
T601 W345
R651 27 3W
C651 330p 2KV
400Vp-p
L651 68uH
D651 FMG-G26S
C652 470u 100V
C653 47u 250V
C654 0.01u 100V
R652 10K
D656 RU3
R664 10K 2W
C666 0.1u 100V
C655 330p 2KV
R654 27 3W
L652 33uH
D652 FMG-G26S
R655 22K 1/2W
R667 470 1/4W
R653 4.7K 1%
C664 3300p 100V
R665 10K 2W
C667 0.1u 100V
C656 100u 160V
C658 100u 160V
C657 100u 160V
C650 1000p 2KV
R656 27 2W
L653 10mH
PC601 PC111LS TLP634
F651 4A 250V
D653 35LCA20
ZD651 RD3EESB(3)
R657 1.8K
C659 2200u 35V
C663 2200u 35V
C660 470u 35V
R658 1.5K
C661 0.082u
R660 22K
R659 1.2K
R662 100
R666 1.2K 2W
Q651 2SC1941
VR651 500
ZD652 RD8.2EB(3)
140Vp-p
R661 2.7K 1%
PC602 PC111LS TLP634
R663 4.7K 1%
C662 0.1u
K1 +175V
K2 +90V
K3 +29V
K4 GND
TO DEF PWB 'K'
PL601 G5P-1
D654 1SS132
R670 15K
Q653 2SC1740
D655 1SS132
R669 47K
R674 1K
ZD653 RD20EB(3)
R672 680
R671 68K
C665 47u 35V
Q654 DTC123ES
CN651
DE2
DE1
TO CONTROL PWB 'DE'
R668 220 1/4W
Q652 2SC1740
NOTES
UNLESS OTHERWISE INDICATED:
RESISTANCE IN OHMS(Ω):1/6W
CAPASITANCE IN FARADS(F):50V
PWE 319
SW. REG PWB

08119354-E
~08119358-E

RUN No. 1

MODEL JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3 VIDEO PWB
SCHEMATIC DIAGRAM

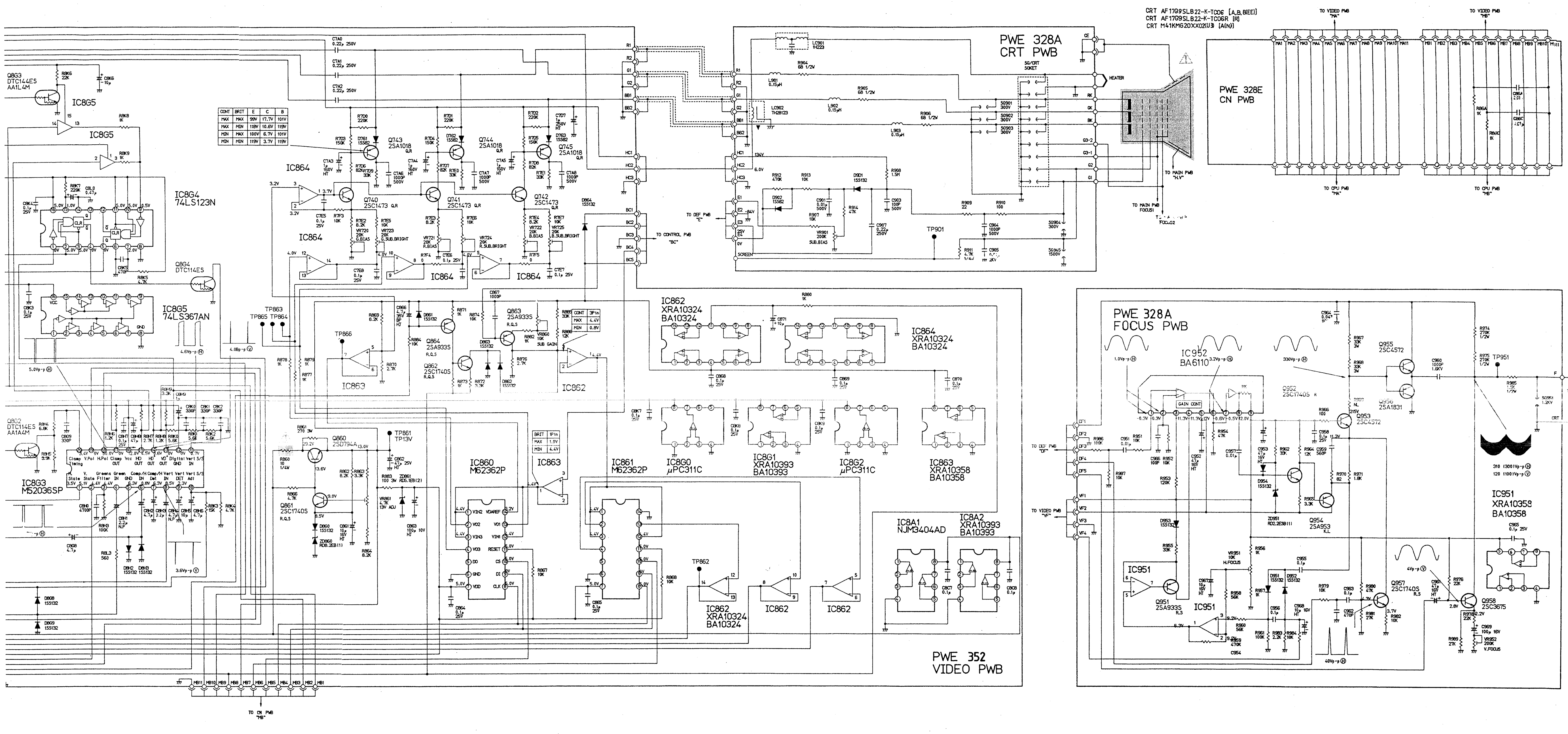

PWE 328C
CONTROL PWB
PWE 328D
VR PWB
SW101 MANUAL DEGAUSS
SW102 V.P DOWN
SW103 V.P UP
SW104 V.S DOWN
SW105 V.S UP
SW106 H.P DOWN
SW107 H.P UP
SW108 H.S DOWN
SW109 H.S UP
SW110 M.RECALL
SW111 INPUT SELECT SW
SW112 COLOR MODE SW
D-SUB
BNC
VR101 10K CONTRAST
VR102 10K BRIGHT
TO SW,REG PWB "DE"
TO CPU PWB
TO CPU PWB "TX"
TO DEF PWB "X"
TO VIDEO PWB "BC"
TO CR PWB "MA"
SW701 SYNC SW ON ↔ OFF
IC701 M52310P
IC702 M51399P
IC703 M51399P
IC704 M51399P
IC8A1
IC8A2
Q701 2SC2901
Q702 2SC2901
Q703 2SC2901
Q704 2SC2901
Q705 2SC2901
Q706 2SC2901
Q707 DTC114ES AA1A4M
Q708 DTA114ES AN1A4M
Q709 DTC114ES AA1A4M
Q710 2SC2901
Q711 2SA933S
Q712 2SA933S
Q713 2SA933S
Q714 2SC1740S
Q715 2SC1740S
Q716 2SC1740S
Q717 DTC144ES AA1L4M
Q718 DTC144ES AA1L4M
Q719 DTC114ES
Q723 2SC2407A
Q724 2SC2407A
Q725 2SC2407A
Q726 2SC2901
Q727 2SC2901
Q728 2SC2901
Q8A1 2SD882
Q8A2 2SC1740S
Q8A3 2SA933S
Q8A4 2SC1740S
Q8A5 DTC114ES AA1A4M
Q8A6 2SC1740S
Q8A7 2SA933S
Q8A8 2SC1740S
Q8A9 2SK701
Q8C0 2SD882
Q8G0 DTA114ES AN1A4M
Q8G1 DTA114ES AN1A4M
Q732 2SA1206
Q733 2SC2901
Q734 DTC114ES AA1A4M
Q7C0 2SC3811
T8A1
TP8A1 TP12V
TP8A2 TP6V
VR8A1 1K +12V ADJ
1.8Vp-p
1.2Vp-p
4.5Vp-p
3.3Vp-p
12Vp-p


4.5Vp-p ④
3.3Vp-p ⑪
50Vp-p ⑪
IC705
VPA12H
IC706
VPA12H
IC707
VPA12H
Q723
2SC2407A
Q724
2SC2407A
Q725
2SC2407A
Q726
2SC2901
Q727
2SC2901
Q728
2SC2901
TP701
TP-G
TP702
TP-R
TP703
TP-B
Q8G3
DTC144ES
AA1L4M
IC8G5
IC8G4
74LS123N
IC8G5
74LS367AN
Q8G4
DTC114ES
Q8G2
DTC114ES
AA1A4M
IC8G3
M52036SP
Q7C0
2SC3811
Q733
2SC2901
Q732
2SA1206
Q731
2SC2901
Q734
DTC114ES
AA1A4M
Q8G1
DTA114ES
AN1A4M
Q8G0
DTA114ES
AN1A4M
IC8G2
IC8G1
IC8G0
IC8G1
IC864
Q740
2SC1473
Q741
2SC1473
Q742
2SC1473
Q743
2SA1018
Q744
2SA1018
Q745
2SA1018
G.BIAS
G.SUB.BRIGHT
R.BIAS
R.SUB.BRIGHT
B.BIAS
B.SUB.BRIGHT
TP863
TP865
TP864
TP866
IC863
Q863
2SA933S
Q864
2SA933S
Q862
2SC1740S
VR860
10K
SUB GAIN
IC862
Q860
2SD794A
Q861
2SC1740S
TP861
TP862
IC860
M62362P
IC861
M62362P
IC862
XRA10324
BA10324
IC864
XRA10324
BA10324
IC8G0
μPC311C
IC8G1
XRA10393
BA10393
IC8G2
μPC311C
IC863
XRA10358
BA10358
IC8A1
NJM3404AD
IC8A2
XRA10393
BA10393
PWE 352
VIDEO PWB
PWE 328A
CRT PWB
TO DEF PWB "E"
TO CONTROL PWB "BC"
TP901
VR901
SUB.BIAS
TO DEF PWB "D"
TO VIDEO PWB "VF"
TO DEF PWB "VF"
TO CN PWB "MB"
R1
R2
G1
G2
BB1
BB2
HC1
HC2
HC3
BC1
BC2
BC3
BC4
BC5
E1
E2
E3
SCREEN
HEATER
RK
GK
BK
G3-1
G3-2
G2
G1
GE

CONT	BRIT	E	C	B
MAX	MAX	99V	17.7V	101V
MAX	MIN	118V	10.6V	119V
MIN	MAX	100V	6.7V	101V
MIN	MIN	119V	3.7V	119V

CONT	3Pin
MAX	4.4V
MIN	0.8V

BRIT	1Pin
MAX	1.0V
MIN	4.4V

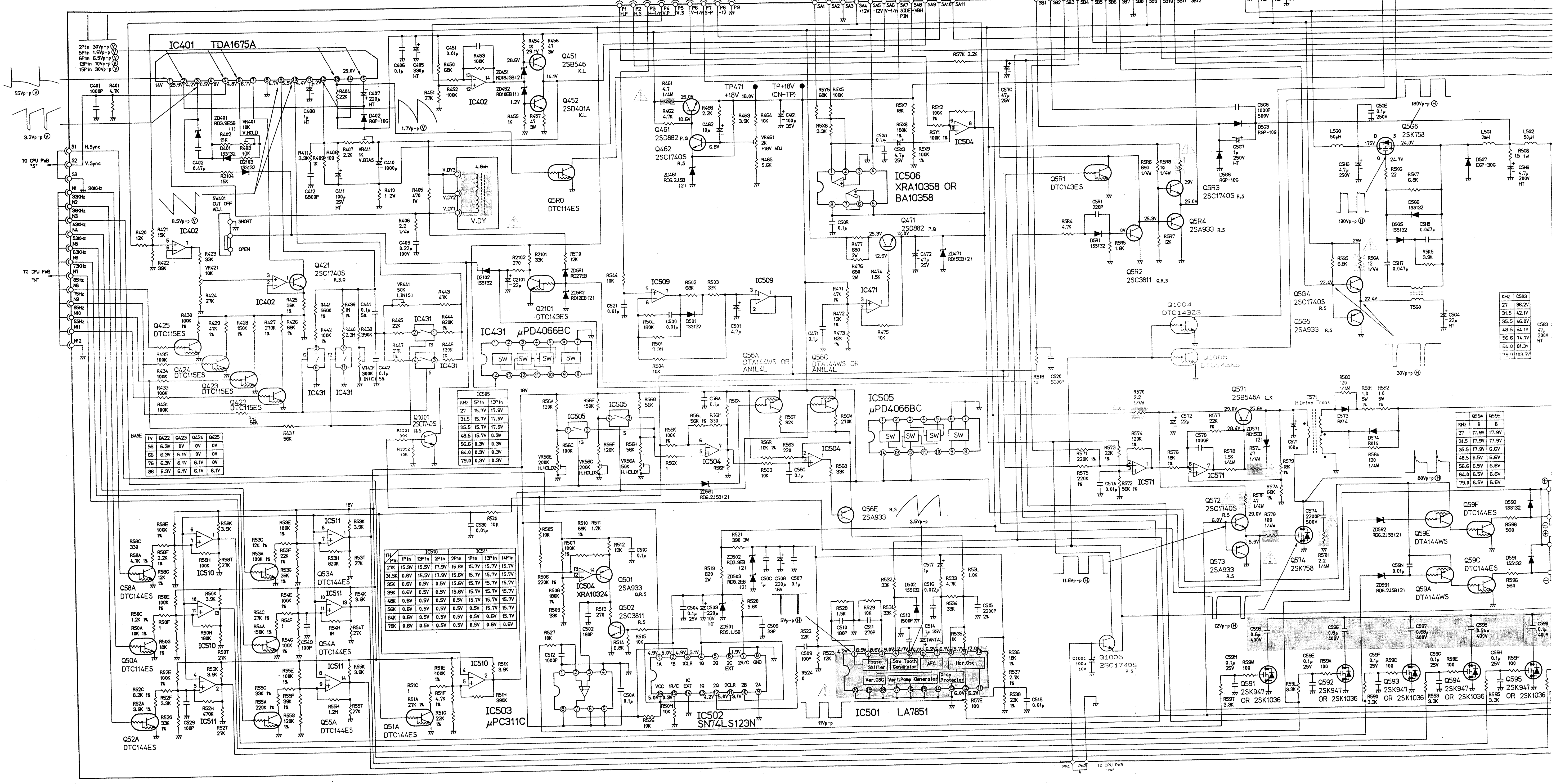

CRT AF17G9SLB22-K-TC06 [A,B,B(EE)]
CRT AF17G9SLB22-K-TC06R [R]
CRT M41KMG20XX02(U3) [A(N)]
PWE 328A
CRT PWB
PWE 328E
CN PWB
TO VIDEO PWB "MA"
TO VIDEO PWB "MB"
TO CPU PWB "MA"
TO CPU PWB "MB"
HEATER
TO MAIN PWB "H.V"
TO MAIN PWB FOCUS1
TO CONTROL PWB "BC"
TO DEF PWB "E"
TP901
IC8G5
IC8G4
74LS123N
IC8G5
74LS367AN
IC8G3
M52036SP
Q8G3
DTC144ES
Q8G4
DTC114ES
Q8G2
DTC114ES
IC864
Q743
2SA1018
Q744
2SA1018
Q745
2SA1018
Q740
2SC1473
Q741
2SC1473
Q742
2SC1473
IC862
XRA10324
BA10324
IC864
XRA10324
BA10324
IC863
IC860
M62362P
IC861
M62362P
IC8G0
μPC311C
IC8G1
XRA10393
BA10393
IC8G2
μPC311C
IC863
XRA10358
BA10358
IC8A1
NJM3404AD
IC8A2
XRA10393
BA10393
Q860
2SD1946
Q861
2SC1740S
Q862
2SC1740S
Q863
2SA933S
Q864
2SA933S
TP861
TP862
TP863
TP864
TP865
TP866
SUB GAIN
PWE 352
VIDEO PWB
TO CN PWB "MB"
PWE 328A
FOCUS PWB
IC952
BA6110
IC951
XRA10358
BA10358
Q951
2SA933S
Q952
2SC1740S
Q953
2SC4572
Q954
2SA953
Q955
2SC4572
Q956
2SA1831
Q957
2SC1740S
Q958
2SC3675
TP951
TO DEF PWB "DF"
TO VIDEO PWB "VF"
TO FOCUS PACK
V.FOCUS
H.FOCUS

CONT	BRIT	E	C	B
MAX	MAX	99V	17.7V	101V
MAX	MIN	118V	10.6V	119V
MIN	MAX	100V	6.7V	101V
MIN	MIN	119V	3.7V	119V

CONT	3Pin
MAX	4.4V
MIN	0.8V

BRIT	1Pin
MAX	1.0V
MIN	4.4V

MODEL JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3 DEF PWB
SCHEMATIC DIAGRAM


IC401 TDA1675A
IC402
IC431 μPD4066BC
IC431
IC504 XRA10324
IC505 μPD4066BC
IC506 XRA10358 OR BA10358
IC509
IC510
IC511
IC471
IC571
IC503 μPC311C
IC502 SN74LS123N
IC501 LA7851
Phase Shifter
Saw Tooth Generator
AFC
Hor.Osc
Ver.OSC
Vert.Pamp Generated
Xray Protector
Q451 2SB546
Q452 2SD401A
Q461 2SD882
Q462 2SC1740S
Q471 2SD882
Q421 2SC1740S
Q422 DTC115ES
Q423 DTC115ES
Q424 DTC115ES
Q425 DTC115ES
Q1001 2SC1740S
Q2101 DTC143ES
Q5R0 DTC114ES
Q5R1 DTC143ES
Q5R2 2SC3811
Q5R3 2SC1740S
Q5R4 2SA933
Q1004 DTC143ZS
Q1005 DTC143XS
Q56A DTA144WS OR AN1L4L
Q56C DTA144WS OR AN1L4L
Q56E 2SA933
Q501 2SA933
Q502 2SC3811
Q58A DTC144ES
Q50A DTC114ES
Q52A DTC144ES
Q53A DTC144ES
Q54A DTC144ES
Q55A DTC144ES
Q51A DTC144ES
Q1006 2SC1740S
Q571 2SB546A
Q572 2SC1740S
Q573 2SA933
Q574 2SK758
Q5G4 2SC1740S
Q5G5 2SA933
Q5G6 2SK758
Q59F DTC144ES
Q59E DTA144WS
Q59C DTC144ES
Q59A DTA144WS
Q591 2SK947 OR 2SK1036
Q592 2SK947 OR 2SK1036
Q593 2SK947 OR 2SK1036
Q594 2SK947 OR 2SK1036
Q595 2SK947 OR 2SK1036
V.DY
T571 H.Drive Trans
TO CPU PWB "P"
TO SDP PWB "SA"
TO SDP PWB "SB"
TO SW PWB "K"
TO SDP PWB "SC"
TO CPU PWB "S"
TO CPU PWB "N"
TO CPU PWB "PH"
TP471 +18V
TP+18V (CN-TP)
2Pin 30Vp-p Ⓥ
5Pin 1.6Vp-p Ⓥ
6Pin 6.5Vp-p Ⓥ
13Pin 10Vp-p Ⓥ
15Pin 30Vp-p Ⓥ
55Vp-p Ⓥ
3.2Vp-p Ⓥ
1.7Vp-p Ⓥ
8.5Vp-p Ⓥ
190Vp-p Ⓗ
180Vp-p Ⓗ
30Vp-p Ⓗ
80Vp-p Ⓗ
3.5Vp-p
11.6Vp-p Ⓗ
12Vp-p Ⓗ
5Vp-p Ⓗ
11Vp-p
SW401 CUT OFF ADJ.
SHORT
OPEN
H.Sync
V.Sync
30KHz
33KHz
38KHz
43KHz
48KHz
53KHz
60KHz
73KHz
85KHz
75Hz
65Hz
55Hz
18V

BASE

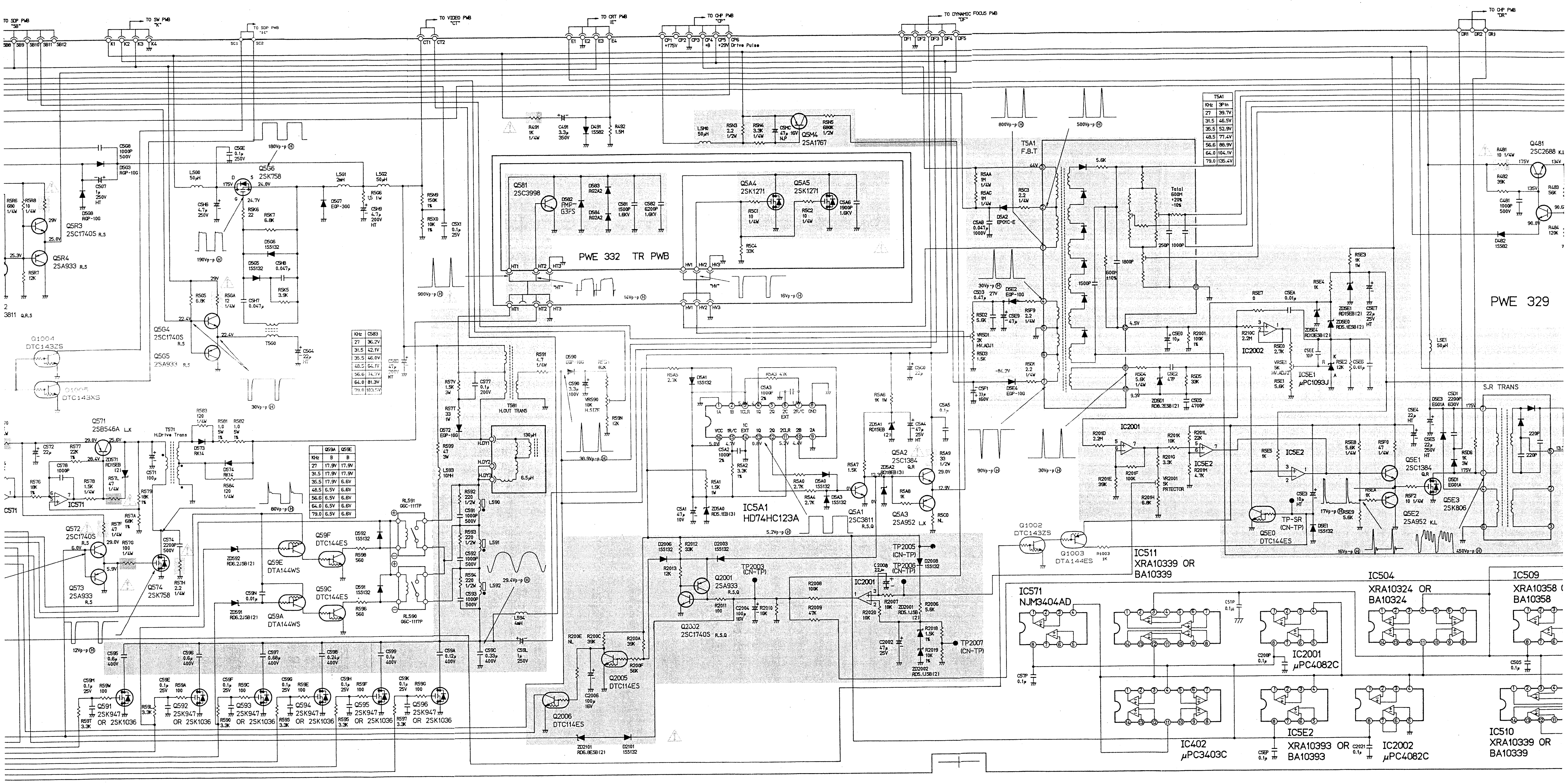
fv	Q422	Q423	Q424	Q425
56	6.3V	0V	0V	0V
66	6.3V	6.1V	0V	0V
76	6.3V	6.1V	6.1V	0V
86	6.3V	6.1V	6.1V	6.1V

IC505		
KHz	5Pin	13Pin
27	15.7V	17.9V
31.5	15.7V	17.9V
35.5	15.7V	17.9V
48.5	15.7V	0.3V
56.6	0.3V	0.3V
64.0	0.3V	0.3V
79.0	0.3V	0.3V

fH / Pin	IC510			IC511			
	1Pin	13Pin	2Pin	2Pin	1Pin	13Pin	14Pin
27K	15.3V	15.5V	17.9V	15.6V	15.7V	15.7V	15.7V
31.5K	0.6V	15.5V	17.9V	15.6V	15.7V	15.7V	15.7V
35K	0.6V	0.5V	0.5V	15.6V	15.7V	15.7V	15.7V
39K	0.6V	0.5V	0.5V	15.6V	15.7V	15.7V	15.7V
48K	0.6V	0.5V	0.5V	0.5V	15.7V	15.7V	15.7V
56K	0.6V	0.5V	0.5V	0.5V	0.5V	15.7V	15.7V
64K	0.6V	0.5V	0.5V	0.5V	0.5V	0.6V	15.7V
78K	0.6V	0.5V	0.5V	0.5V	0.5V	0.6V	0.6V

KHz	C583
27	36.2V
31.5	42.1V
35.5	46.0V
48.5	64.1V
56.6	74.7V
64.0	81.3V
79.0	103.5V

	Q59A	Q59E
KHz	B	B
27	17.9V	17.9V
31.5	17.9V	17.9V
35.5	17.9V	6.6V
48.5	6.5V	6.6V
56.6	6.5V	6.6V
64.0	6.5V	6.6V
79.0	6.5V	6.6V



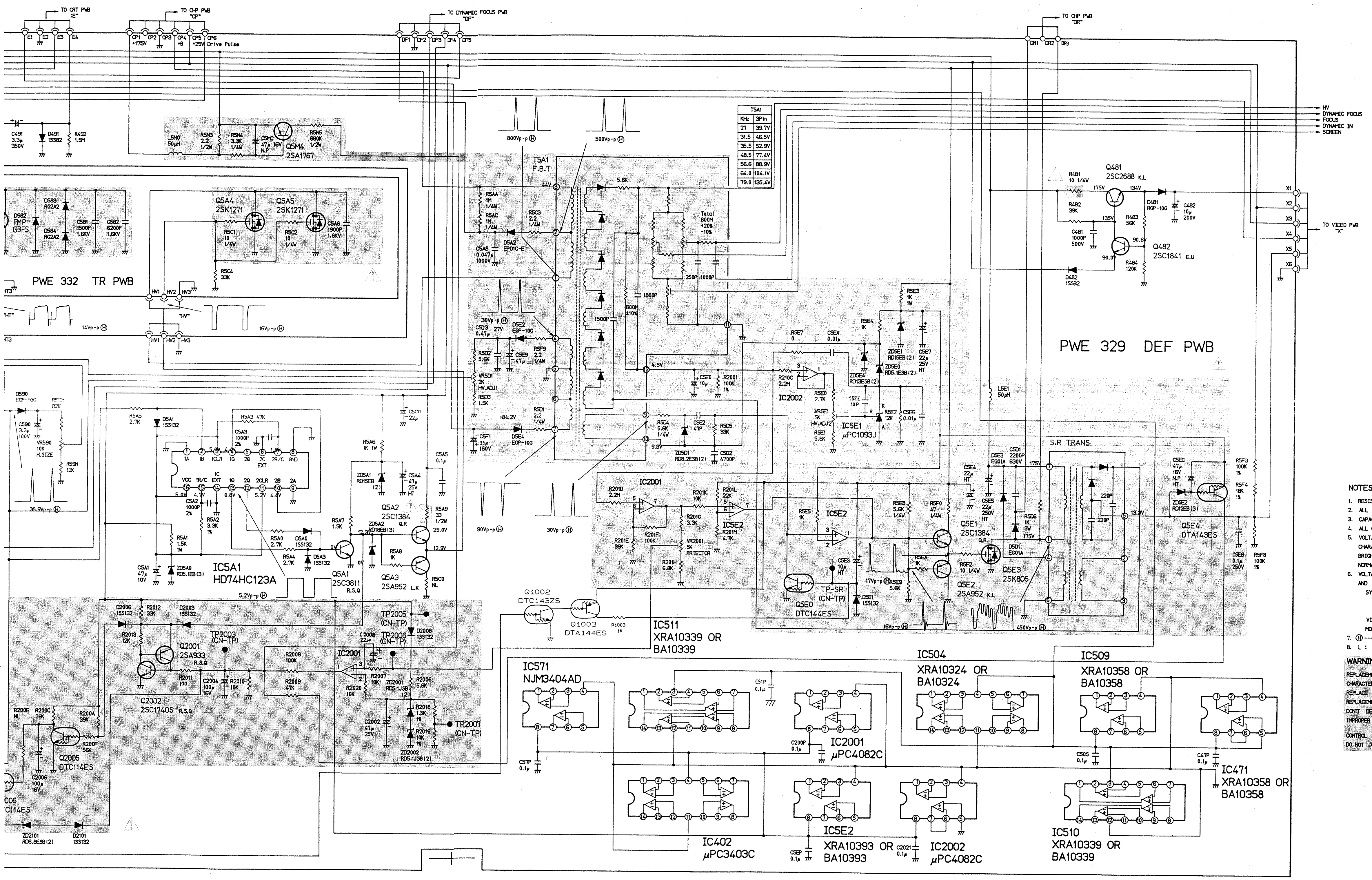
TO SDP PWB "SB"
TO SW PWB "K"
TO SDP PWB "SC"
TO VIDEO PWB "CT"
TO CRT PWB "E"
TO CHP PWB "CP"
CP6 Drive Pulse
TO DYNAMIC FOCUS PWB "DF"
TO CHP PWB "DR"
PWE 332 TR PWB
PWE 329
T5A1 F.B.T
S.R TRANS
T581 H.OUT TRANS
T571 H.Drive Trans
Q581 2SC3998
D582 FMP-G3FS
Q5A4 2SK1271
Q5A5 2SK1271
Q5M4 2SA1767
Q5G6 2SK758
Q5R3 2SC1740S
Q5R4 2SA933
Q5G4 2SC1740S
Q5G5 2SA933
Q1004 DTC143ZS
Q1005 DTC143XS
Q571 2SB546A
Q572 2SC1740S
Q573 2SA933
Q574 2SK758
Q59F DTC144ES
Q59E DTA144WS
Q59C DTC144ES
Q59A DTA144WS
Q591 2SK947 OR 2SK1036
Q592 2SK947 OR 2SK1036
Q593 2SK947 OR 2SK1036
Q594 2SK947 OR 2SK1036
Q595 2SK947 OR 2SK1036
Q596 2SK947 OR 2SK1036
Q2001 2SA933
Q2002 2SC1740S
Q2005 DTC114ES
Q2006 DTC114ES
Q5A1 2SC3811
Q5A2 2SC1384
Q5A3 2SA952
Q1002 DTC143ZS
Q1003 DTA144ES
Q5E0 DTC144ES
Q5E1 2SC1384
Q5E2 2SA952
Q5E3 2SK806
Q481 2SC2688
IC5A1 HD74HC123A
IC2001
IC2002 μPC1093J
IC5E1 μPC1093J
IC5E2
IC571
IC511 XRA10339 OR BA10339
IC571 NJM3404AD
IC504 XRA10324 OR BA10324
IC509 XRA10358 OR BA10358
IC2001 μPC4082C
IC402 μPC3403C
IC5E2 XRA10393 OR BA10393
IC2002 μPC4082C
IC510 XRA10339 OR BA10339
RL591 G6C-1117P
RL590 G6C-1117P
TP2003 (CN-TP)
TP2005 (CN-TP)
TP2006 (CN-TP)
TP2007 (CN-TP)
TP-SR (CN-TP)
VRSD1 2K HV.ADJ1
VRSE1 5K HV.ADJ2
VR2001 5K PROTECTOR
VR590 10K H.SIZE
Total 600M +20% -10%
190Vp-p Ⓗ
180Vp-p Ⓗ
900Vp-p Ⓗ
14Vp-p Ⓗ
16Vp-p Ⓗ
800Vp-p Ⓗ
500Vp-p Ⓗ
30Vp-p Ⓗ
38.5Vp-p Ⓗ
80Vp-p Ⓗ
29.4Vp-p Ⓗ
12Vp-p Ⓗ
5.2Vp-p Ⓗ
90Vp-p Ⓗ
17Vp-p Ⓗ
450Vp-p Ⓗ

T5A1	
KHz	3Pin
27	39.7V
31.5	46.5V
35.5	52.9V
48.5	77.4V
56.6	88.9V
64.0	104.1V
79.0	135.4V

KHz	C583
27	36.2V
31.5	42.1V
35.5	46.0V
48.5	64.1V
56.6	74.7V
64.0	81.3V
79.0	103.5V

	Q59A	Q59E
KHz	B	B
27	17.9V	17.9V
31.5	17.9V	17.9V
35.5	17.9V	6.6V
48.5	6.5V	6.6V
56.6	6.5V	6.6V
64.0	6.5V	6.6V
79.0	6.5V	6.6V

RUN No. 1


TO CRT PWB "E"
TO CHP PWB "CP"
CP1 +175V
CP4 +B
CP5 +29V
CP6 Drive Pulse
TO DYNAMIC FOCUS PWB "DF"
TO CHP PWB "DR"
HV
DYNAMIC FOCUS
FOCUS
DYNAMIC IN
SCREEN
TO VIDEO PWB "X"
PWE 332 TR PWB
PWE 329 DEF PWB
T5A1 F.B.T
Q5M4 2SA1767
Q5A4 2SK1271
Q5A5 2SK1271
Q481 2SC2688
Q482 2SC1841
IC5A1 HD74HC123A
Q5A2 2SC1384
Q5A1 2SC3811
Q5A3 2SA952
IC2001
IC2002
IC5E1 μPC1093J
IC5E2
Q5E0 DTC144ES
Q5E1 2SC1384
Q5E2 2SA952
Q5E3 2SK806
Q5E4 DTA143ES
S.R TRANS
Q1002 DTC143ZS
Q1003 DTA144ES
Q2001 2SA933
Q2002 2SC1740S
Q2005 DTC114ES
TP2003 (CN-TP)
TP2005 (CN-TP)
TP2006 (CN-TP)
TP2007 (CN-TP)
TP-SR (CN-TP)
IC511 XRA10339 OR BA10339
IC571 NJM3404AD
IC504 XRA10324 OR BA10324
IC509 XRA10358 OR BA10358
IC2001 μPC4082C
IC471 XRA10358 OR BA10358
IC402 μPC3403C
IC5E2 XRA10393 OR BA10393
IC2002 μPC4082C
IC510 XRA10339 OR BA10339
800Vp-p Ⓗ
500Vp-p Ⓗ
90Vp-p Ⓗ
30Vp-p Ⓗ
14Vp-p Ⓗ
16Vp-p Ⓗ
5.2Vp-p Ⓗ
450Vp-p Ⓗ
Total 600M +20% -10%

T5A1	
KHz	3Pin
27	39.7V
31.5	46.5V
35.5	52.9V
48.5	77.4V
56.6	88.9V
64.0	104.1V
79.0	135.4V

NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K = 1.000Ω M = 1.000.000Ω
2. ALL RESISTORS ARE 1/6WATT EXCEPT WHERE OTHERWISE INDICATED.
3. CAPACITOR VOLUES ARE IN μF UNLESS OTHERWISE INDICATED. P = PF
4. ALL CAPACITORS ARE 50VOLTS EXCEPT WHERE OTHERWISE INDICATED.
5. VOLTAGES AND WAVEFORMS ARE MEASURED UNDER THE INVERTED " H CHARACTER SIGNALS. THE CONTRAST CONTROL IS MAXIMUM. THE BRIGHTNESS CONTROL IS MINIMUM AND ALL OTHER CONTROLS ARE NORMAL OPERATION.
6. VOLTAGES AND WAVEFORMS ARE MESURD UNDER THE FOLLOWING SYNC. AND VIDEO EXCEPT WHERE OTHERWISE INDICATED.
   SYNC : HORIZONTAL RATE = 31.5KHz VERTICAL RATE = 70HZ
   SEPARATE SYNC. TTL LEVEL
   HORIZONTAL SYNC. NEGATIVE
   VIDEO : ANALOG 0.7Vp-p POSITIVE
   MODE SW : OFF
7. Ⓗ ----- HORIZONTAL RATE. Ⓥ ----- VERTICAL RATE.
8. L : TTL LOW LEVEL H " TTL HIGH LEVEL

WARNING

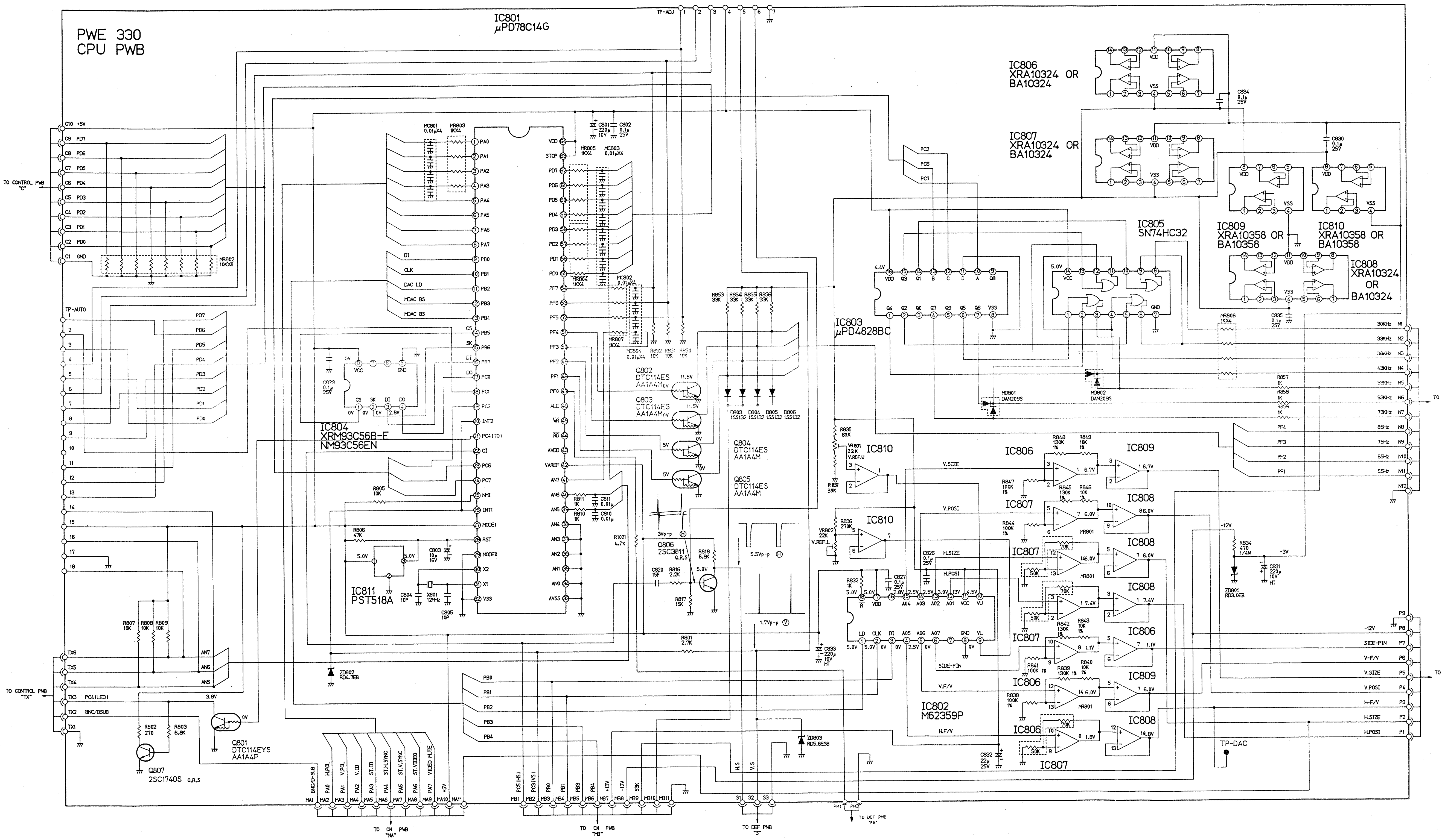
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHADING ON THE SCHEMATICS. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS.
DON'T DEGRADE THE SAFETY OF THE SET THROUGH IMPROPER SERVICING.

CONTROL (S) MARKED ✱ IS PERMANENTLY FROZEN. DO NOT ATTEMPT TO DEFEAT OR IMPROPERLY REPLACE.

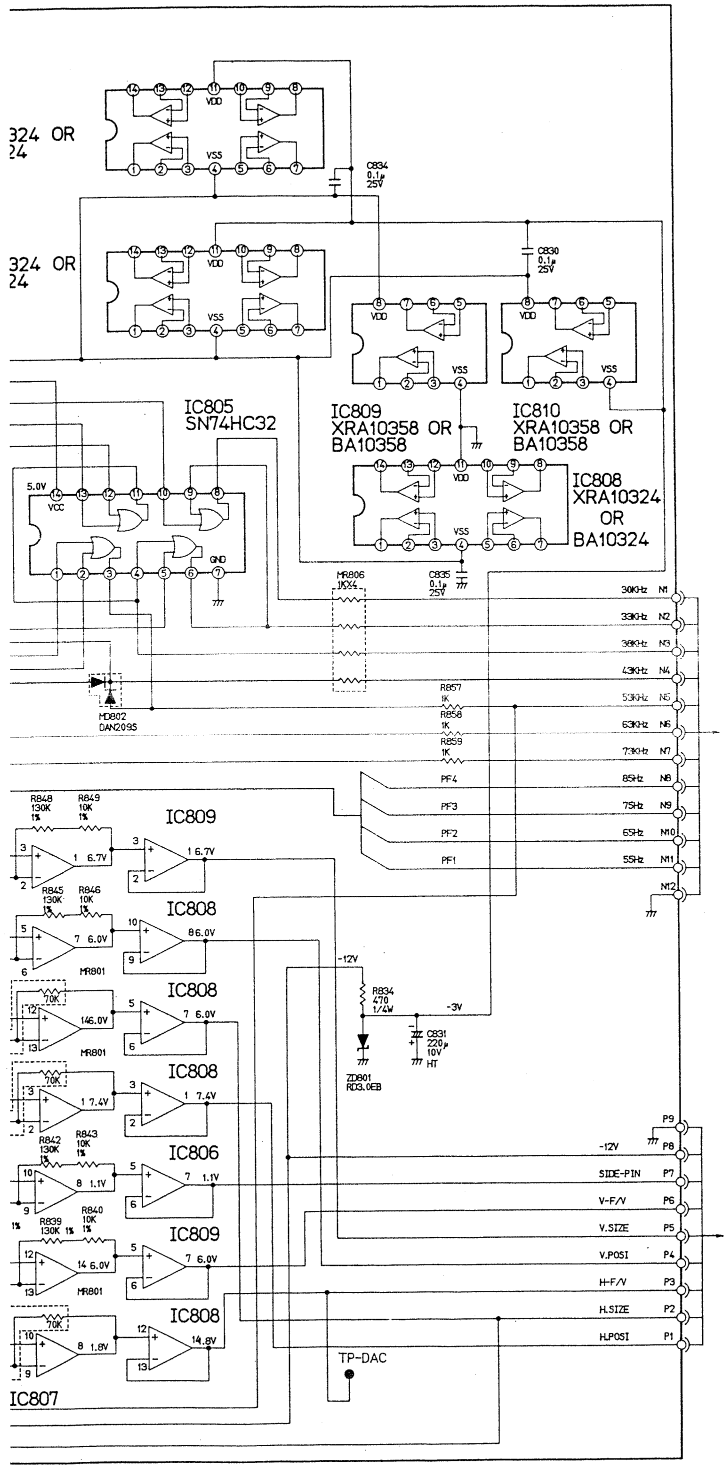
08119354-E
~08119358-E

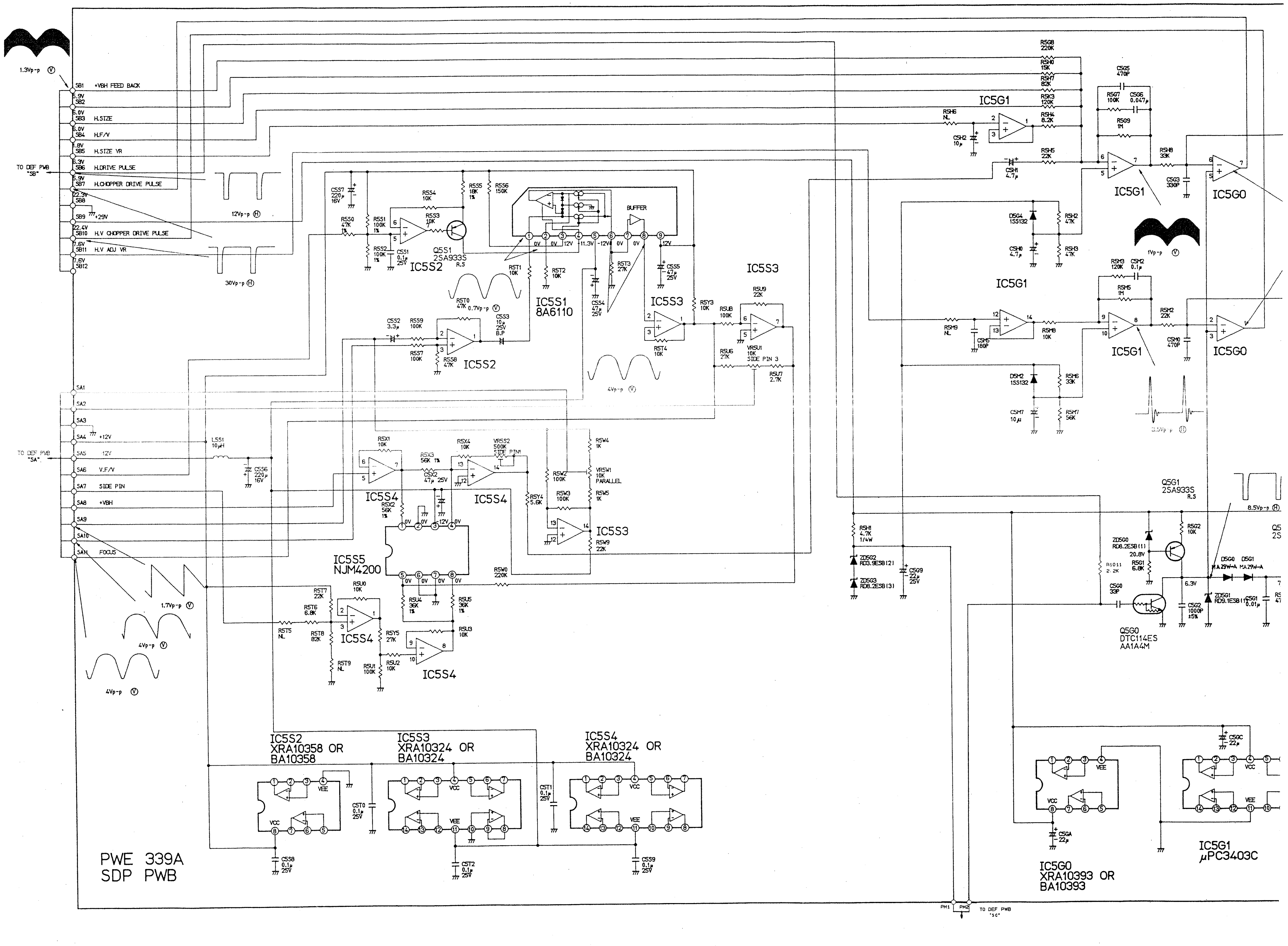
RUN No. 1

MODEL JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3 CPU PWB
SCHEMATIC DIAGRAM

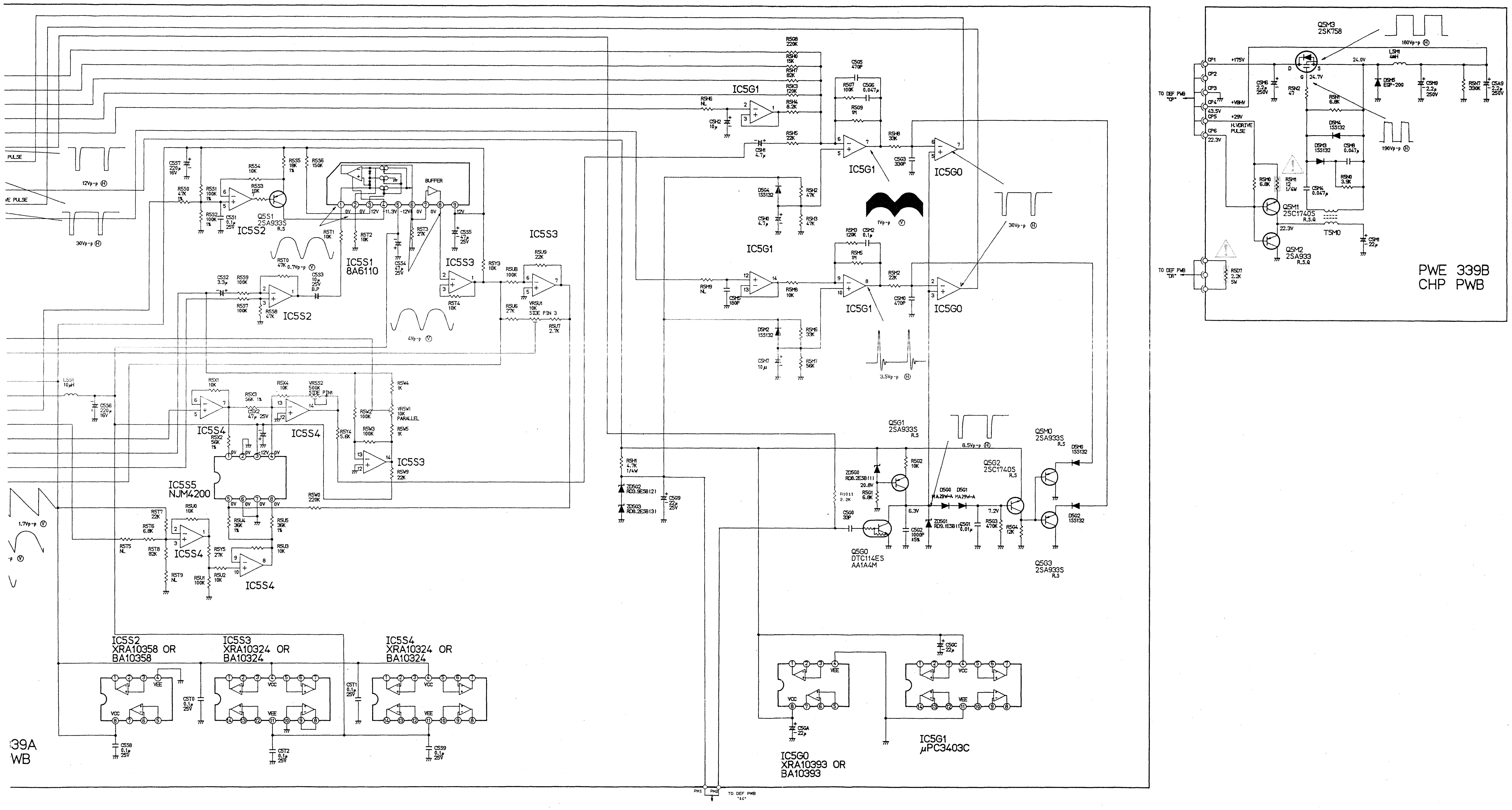

PWE 330
CPU PWB
IC801
μPD78C14G
TP-ADJ
IC806
XRA10324 OR
BA10324
IC807
XRA10324 OR
BA10324
IC805
SN74HC32
IC809
XRA10358 OR
BA10358
IC810
XRA10358 OR
BA10358
IC808
XRA10324
OR
BA10324
IC803
μPD4828BC
IC804
XRM93C56B-E
NM93C56EN
IC811
PST518A
IC802
M62359P
Q802
DTC114ES
AA1A4M
Q803
DTC114ES
AA1A4M
Q804
DTC114ES
AA1A4M
Q805
DTC114ES
AA1A4M
Q806
2SC3811
Q801
DTC114EYS
AA1A4P
Q807
2SC1740S
TO CONTROL PWB "C"
TO CONTROL PWB "TX"
TO DEF PWB "N"
TO DEF PWB "P"
TO DEF PWB "S"
TO DEF PWB "PH"
TO CN PWB "MA"
TO CN PWB "MB"
TP-AUTO
TP-DAC
X801
12MHz
ZD801
ZD802
ZD803
MD801
MD802
3Vp-p
5.5Vp-p
1.7Vp-p
30KHz
33KHz
38KHz
43KHz
53KHz
63KHz
73KHz
85Hz
75Hz
65Hz
55Hz
-12V
SIDE-PIN
V-F/V
V.SIZE
V.POSI
H-F/V
H.SIZE
H.POSI
BNC/D-SUB
H.POL
V.POL
V.ID
ST.H.SYNC
ST.V.SYNC
ST.VIDEO
VIDEO MUTE
+5V
+13V
-12V
H.S
V.S

MODEL JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3 SDP PWB
SCHEMATIC DIAGRAM

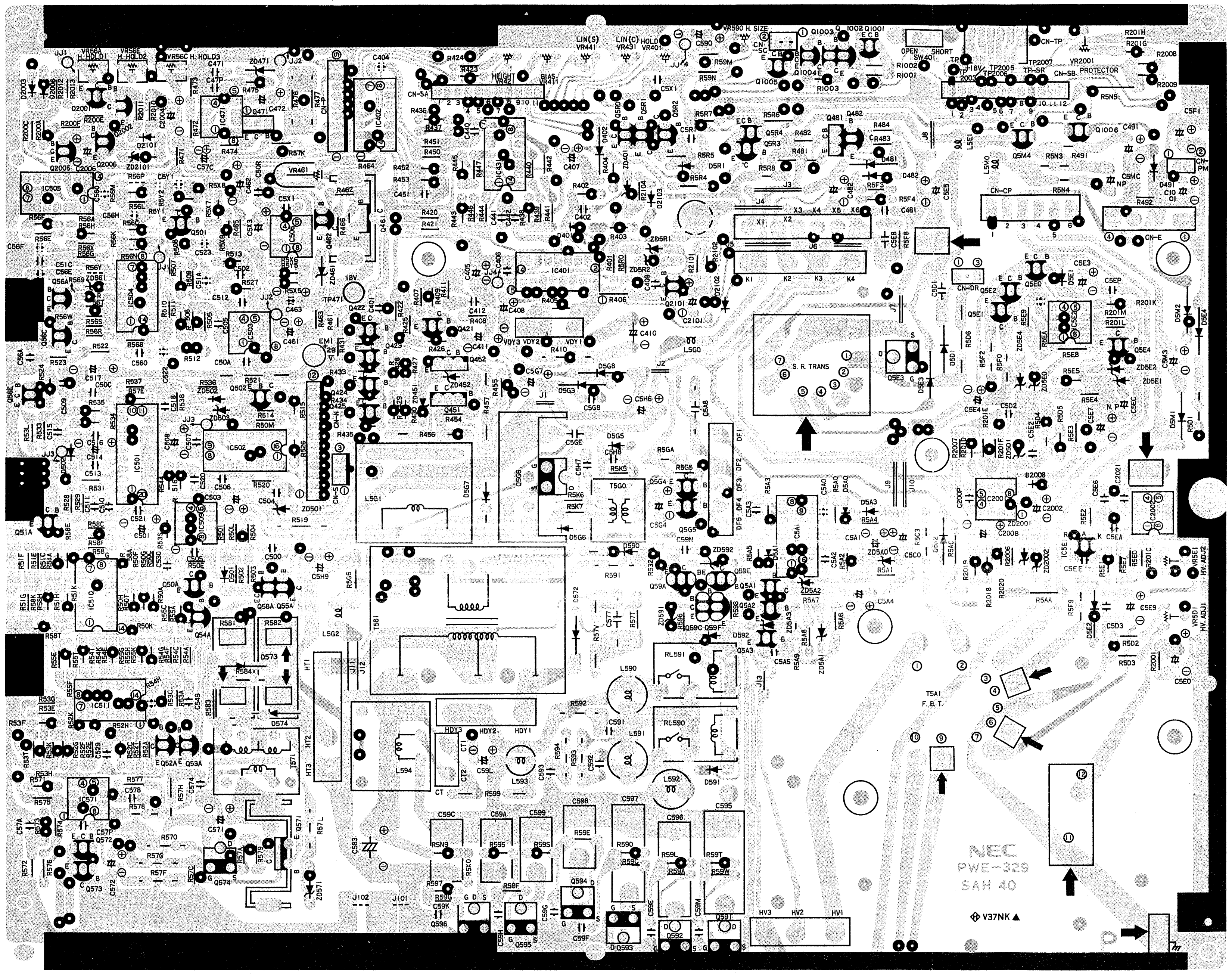

324 OR
24
324 OR
24
C834 0.1μ 25V
C830 0.1μ 25V
VDD
VSS
IC805
SN74HC32
IC809
XRA10358 OR
BA10358
IC810
XRA10358 OR
BA10358
IC808
XRA10324
OR
BA10324
C835 0.1μ 25V
MR806
MD802
DAN202S
R857 1K
R858 1K
R859 1K
30KHz N1
33KHz N2
38KHz N3
43KHz N4
53KHz N5
63KHz N6
73KHz N7
85Hz N8
75Hz N9
65Hz N10
55Hz N11
N12
PF4
PF3
PF2
PF1
TO DEF PWB "N"
IC809
IC808
IC808
IC808
IC806
IC809
IC808
IC807
MR801
-12V
R834 470 1/4W
C831 220μ 10V
-3V
ZD801 RD3.0EB
P9
-12V P8
SIDE-PIN P7
V-F/V P6
V.SIZE P5
V.POSI P4
H-F/V P3
H.SIZE P2
H.POSI P1
TO DEF PWB "P"
TP-DAC


1.3Vp-p Ⓥ
SB1 +VBH FEED BACK
SB2
SB3 H.SIZE
SB4 H.F/V
SB5 H.SIZE VR
SB6 H.DRIVE PULSE
SB7 H.CHOPPER DRIVE PULSE
SB8
SB9 +29V
SB10 H.V CHOPPER DRIVE PULSE
SB11 H.V ADJ VR
SB12
TO DEF PWB "SB"
12Vp-p Ⓗ
30Vp-p Ⓗ
SA1
SA2
SA3
SA4 +12V
SA5 -12V
SA6 V.F/V
SA7 SIDE PIN
SA8 +VBH
SA9
SA10
SA11 FOCUS
TO DEF PWB "SA"
L551 10μH
C556 220μ 16V
1.7Vp-p Ⓥ
4Vp-p Ⓥ
4Vp-p Ⓥ
C557 220μ 16V
Q5S1
2SA933S
R,S
IC5S2
IC5S1
BA6110
BUFFER
IC5S3
IC5S2
IC5S3
4Vp-p Ⓥ
IC5S4
IC5S4
IC5S3
IC5S5
NJM4200
IC5S4
IC5S4
IC5G1
IC5G1
IC5G0
1Vp-p Ⓥ
IC5G1
IC5G1
IC5G0
2.5Vp-p Ⓗ
Q5G1
2SA933S
R,S
8.5Vp-p Ⓗ
Q5G0
DTC114ES
AA1A4M
D5G0 MA29W-A
D5G1 MA29W-A
ZD5G0 RD8.2ESB(1)
ZD5G1 RD9.1ESB(1)
ZD5G2 RD3.9ESB(2)
ZD5G3 RD8.2ESB(3)
D5G4 1SS132
D5H2 1SS132
IC5S2
XRA10358 OR
BA10358
IC5S3
XRA10324 OR
BA10324
IC5S4
XRA10324 OR
BA10324
VCC
VEE
IC5G0
XRA10393 OR
BA10393
IC5G1
μPC3403C
PWE 339A
SDP PWB
PH1
PH2
TO DEF PWB "1C"

L JC-1741UMA-3, (N)/B-3/B-3(EE)/R-3 SDP PWB
MATIC DIAGRAM

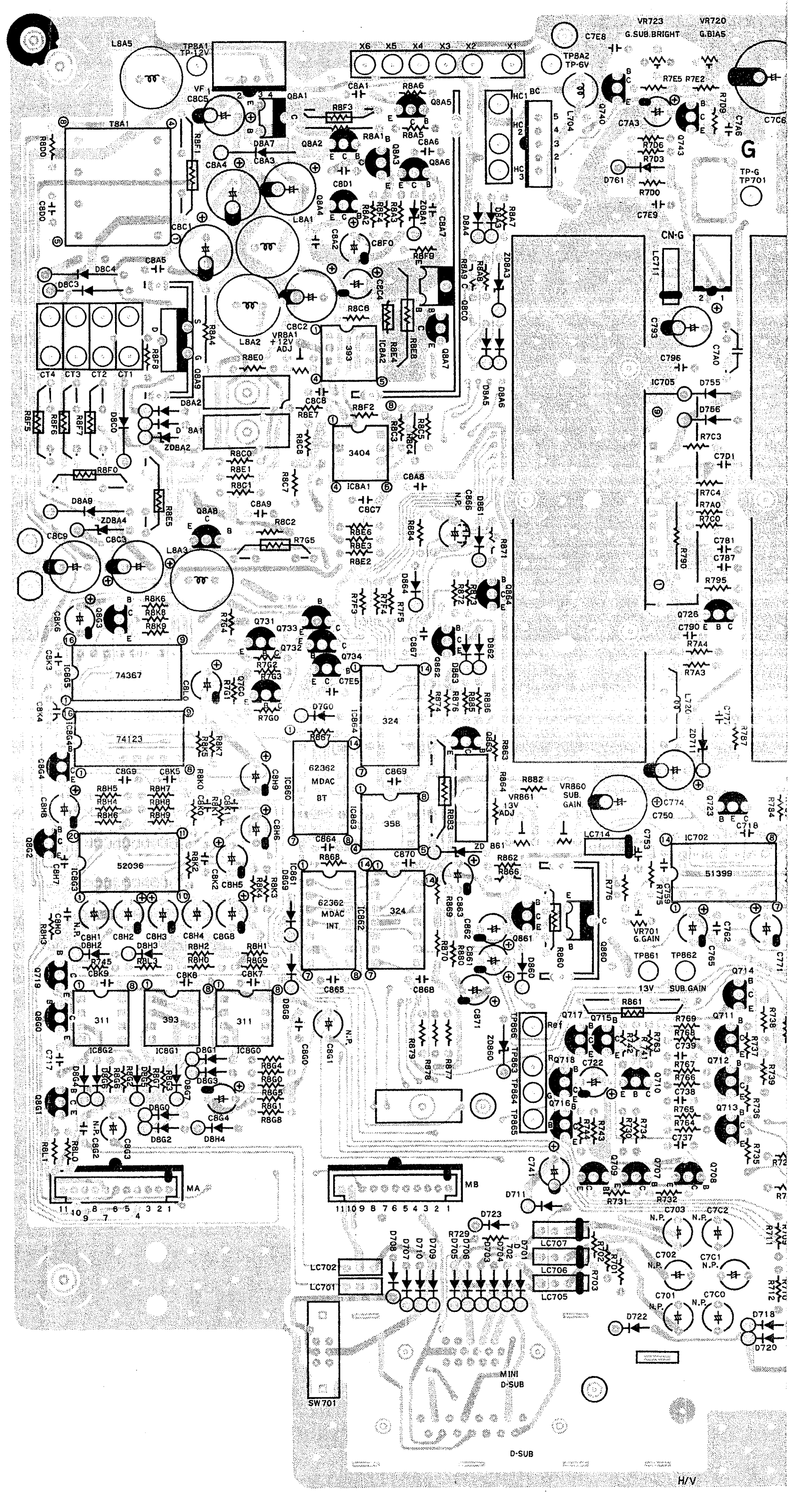

PULSE
12Vp-p Ⓗ
VE PULSE
30Vp-p Ⓗ
IC5S2
Q5S1
2SA933S
IC5S1
8A6110
BUFFER
IC5S3
0.7Vp-p Ⓥ
4Vp-p Ⓥ
IC5S4
IC5S5
NJM4200
1.7Vp-p Ⓥ
IC5S2
XRA10358 OR
BA10358
IC5S3
XRA10324 OR
BA10324
IC5S4
XRA10324 OR
BA10324
39A
WB
IC5G1
IC5G0
1Vp-p Ⓥ
30Vp-p Ⓗ
3.5Vp-p Ⓗ
Q5G1
2SA933S
8.5Vp-p Ⓗ
Q5G2
2SC1740S
Q5M0
2SA933S
Q5G0
DTC114ES
AA1A4M
Q5G3
2SA933S
IC5G0
XRA10393 OR
BA10393
IC5G1
μPC3403C
TO DEF PWB "SC"
Q5M3
2SK758
180Vp-p Ⓗ
190Vp-p Ⓗ
TO DEF PWB "CP"
+175V
+VBHV
+29V
H.VDRIVE PULSE
Q5M1
2SC1740S
Q5M2
2SA933
T5M0
TO DEF PWB "DR"
PWE 339B
CHP PWB

PRINTED WIRING BOARDS


S. R. TRANS
T5A1
F.B.T.
NEC
PWE-329
SAH 40
V37NK ▲
HV3
HV2
HV1
HV. ADJ
H. SIZE

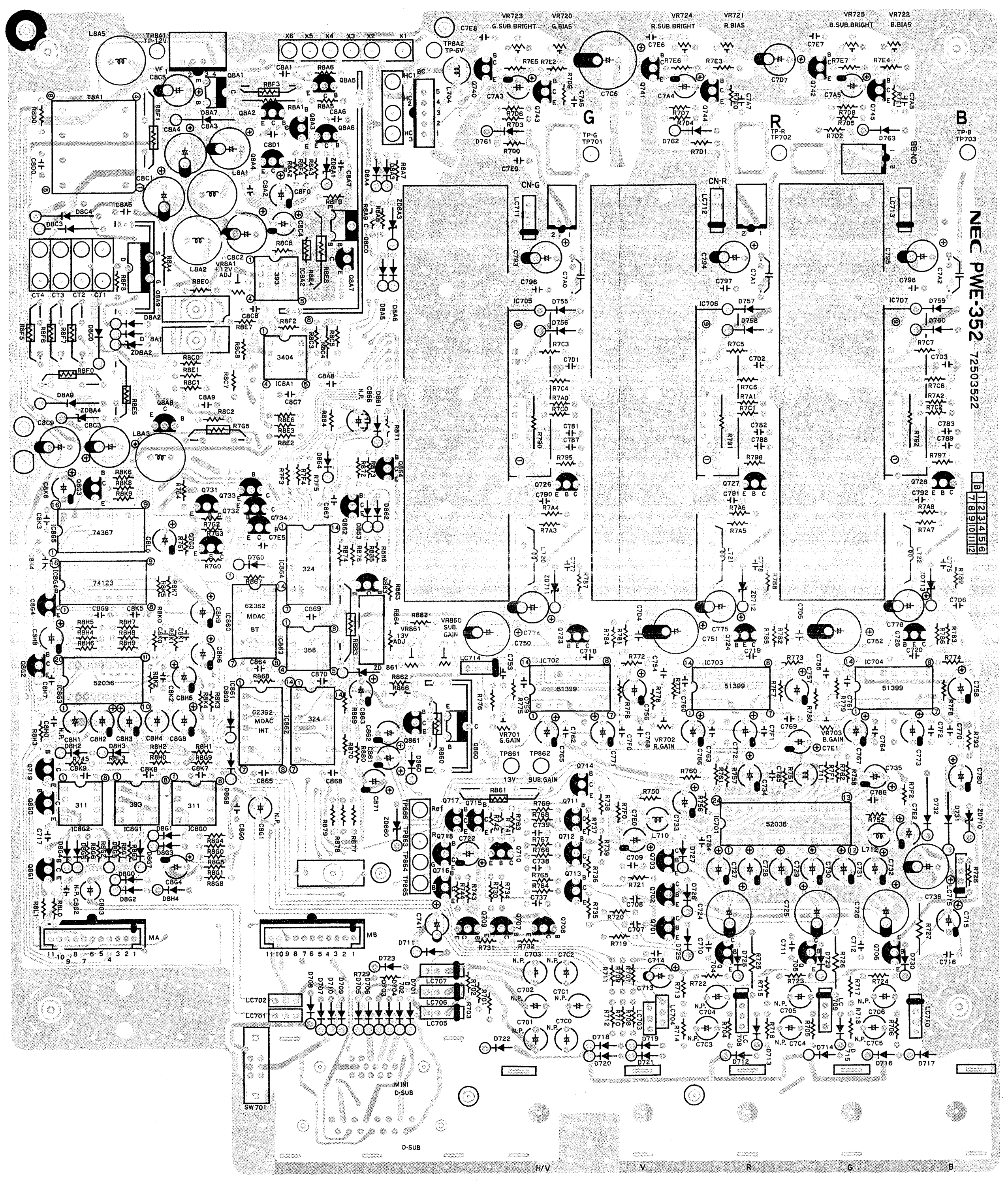
DEF PWB ASSY (PWE-329)

— Solder Side —


74367
74123
52036
MDAC
62362
51399
MINI D-SUB
D-SUB
SW701
H/V

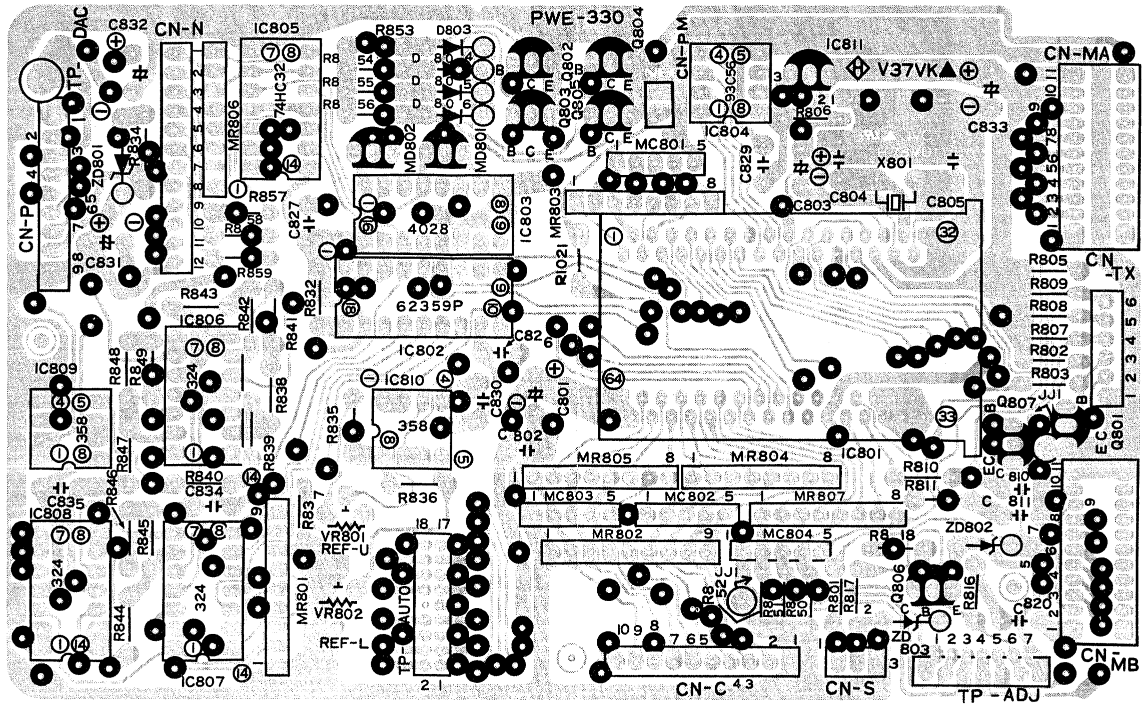
VIDEO PWB ASSY (PW

— Component Side


NEC PWE-352
72503522
G
R
B
TP-G
TP-R
TP-B
CN-G
CN-R
MA
MB
D-SUB
MINI D-SUB
H/V
V
R
G
B
SW701

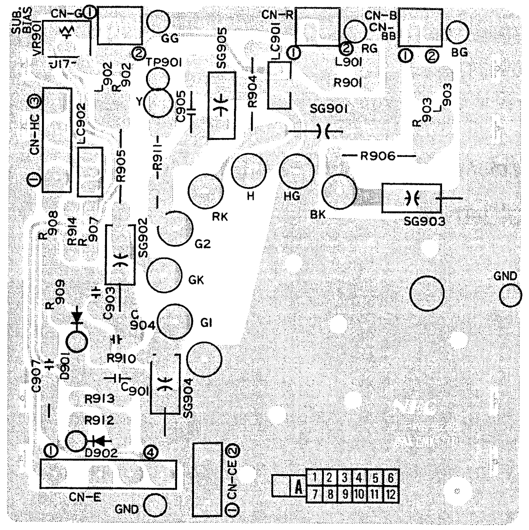
VIDEO PWB ASSY (PWE-352)

— Component Side —


PWE-330
CN-N
IC805
74HC32
IC811
V37VK
CN-MA
CN-P
4028
62359P
X801
IC802
IC810
358
IC806
IC809
IC808
IC807
324
VR801 REF-U
VR802 REF-L
TP-AUTO
CN-C
CN-S
TP-ADJ
CN-MB
CN-TX
Q801
Q807
IC801
MR805
MR804
MC803
MC802
MR807
MR802
MC804
ZD802

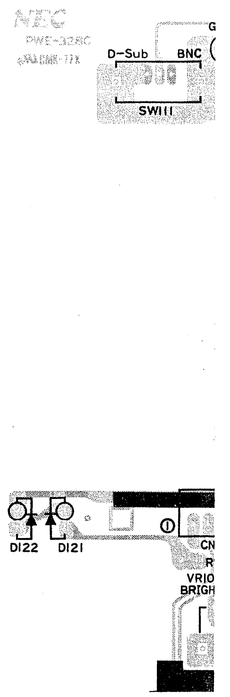
CPU PWB ASSY (PWE-330)

— Solder Side —


SUB BIAS VR901
CN-G
CN-R
CN-B
CN-HC
GG
RG
BG
TP901
SG905
SG901
SG902
SG903
SG904
L901
R901
R906
RK
H
HG
BK
G2
GK
GI
GND
D901
D902
CN-E
CN-CE

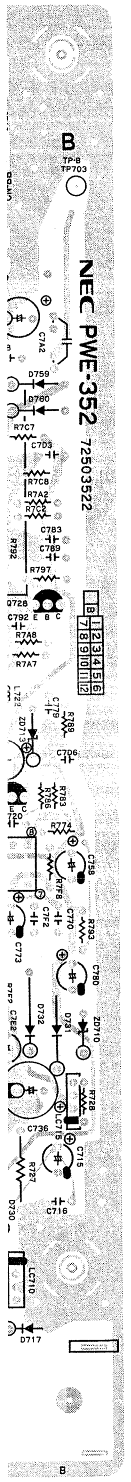
CRT PWB ASSY (PWE-328B)

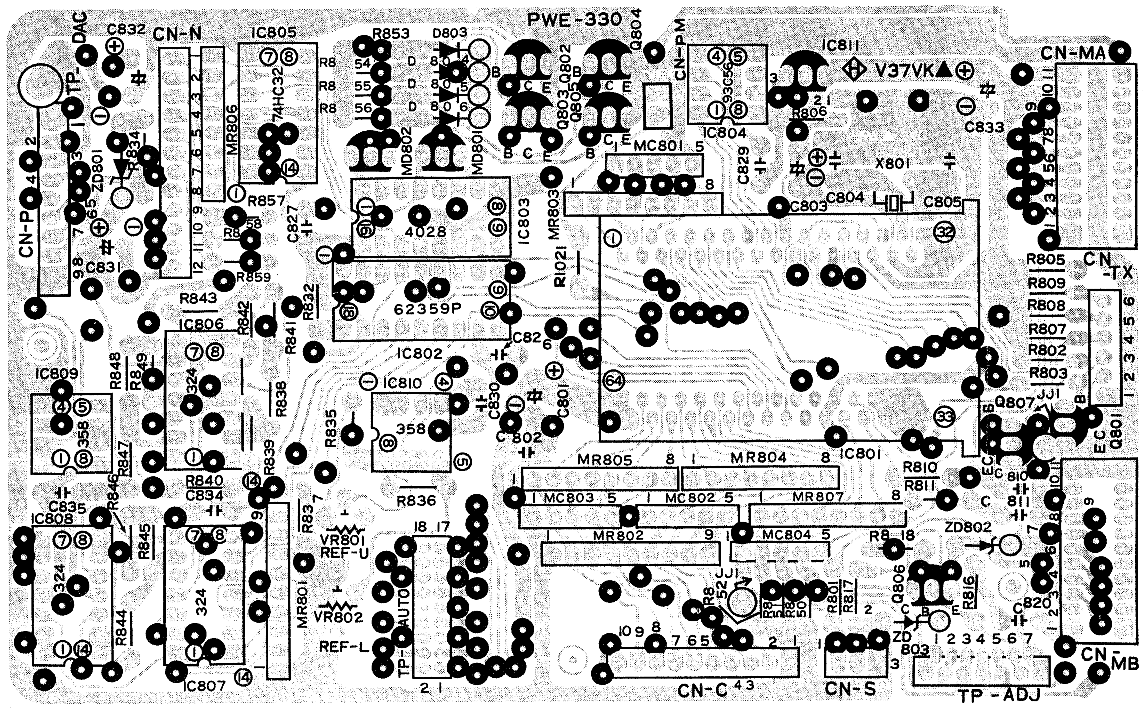
— Solder Side —


NEC
PWE-328C
D-Sub
BNC
SW1II
DI22
DI21
VRIO
BRIGH

VR PWB ASS

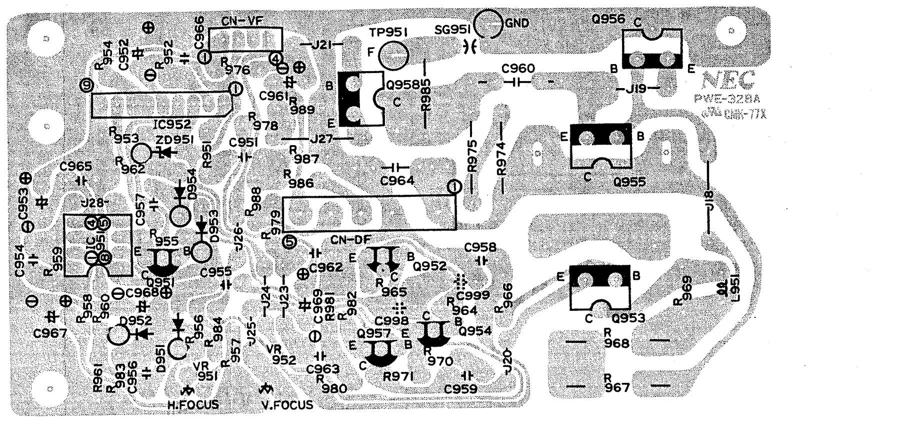
— Sold


NEC PWE-352
72503522
B


PWE-330
CN-N
CN-P
CN-PM
CN-MA
CN-TX
CN-MB
CN-C
CN-S
TP-ADJ
IC805
IC806
IC807
IC808
IC809
IC801
IC802
IC803
IC804
IC810
IC811
V37VK
X801
VR801 REF-U
VR802 REF-L
TP-AUTO
TP-DAC

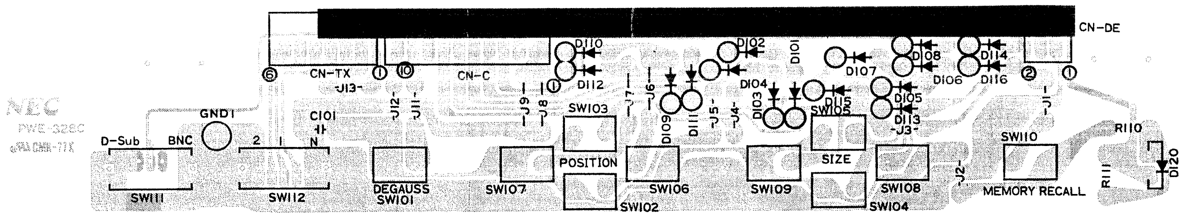
CPU PWB ASSY (PWE-330)

— Solder Side —


CN-VF
CN-DF
TP951
SG951
GND
NEC
PWE-328A
H.FOCUS
V.FOCUS
Q951
Q952
Q953
Q954
Q955
Q956
Q957
Q958
IC951
IC952

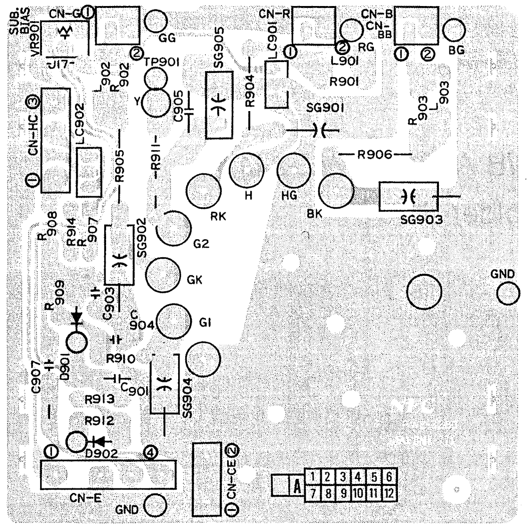
FOCUS PWB ASSY (PWE-328A)

— Solder Side —


NEC
PWE-328C
CN-DE
CN-TX
CN-C
GND1
D-Sub
BNC
SW111
SW112
DEGAUSS SW101
SW107
SW103
POSITION
SW102
SW106
SW109
SIZE
SW105
SW108
SW104
SW110
MEMORY RECALL

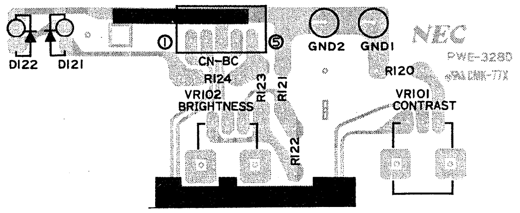
CONTROL PWB ASSY (PWE-328C)

— Solder Side —


CN-G
CN-R
CN-B
CN-HC
CN-E
CN-CE
SUB-BIAS VR901
TP901
SG901
SG902
SG903
SG904
SG905
GND
RK
H
HG
BK
G2
GK
GI
GG
RG
BG

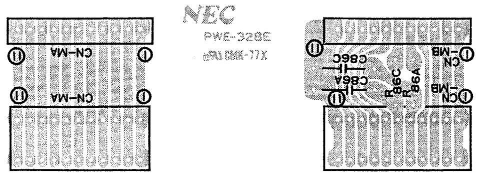
CRT PWB ASSY (PWE-328B)

— Solder Side —


NEC
PWE-328D
CN-BC
D122
D121
GND2
GND1
R124
R123
R121
R122
R120
VR102 BRIGHTNESS
VR101 CONTRAST

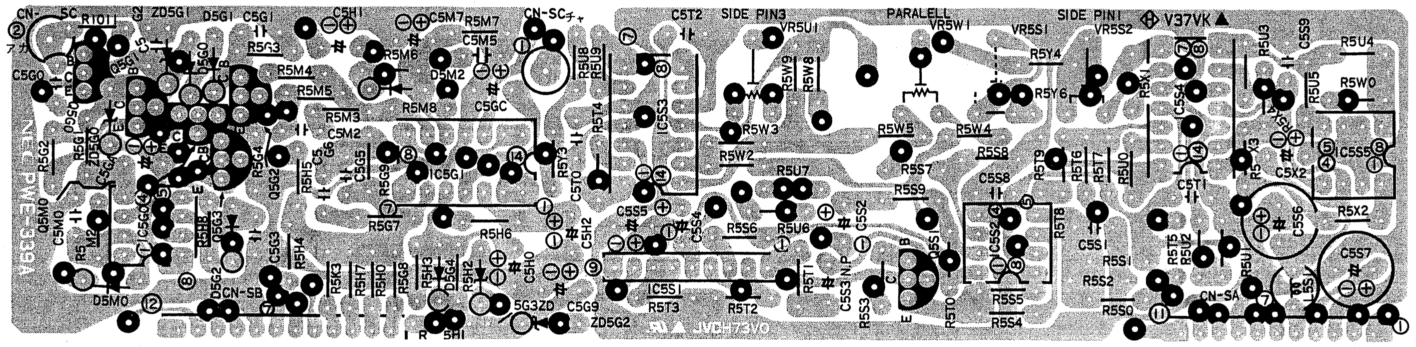
VR PWB ASSY (PWE-328D)

— Solder Side —


NEC
PWE-328E
CN-MA
CN-MB
C86C
C86A

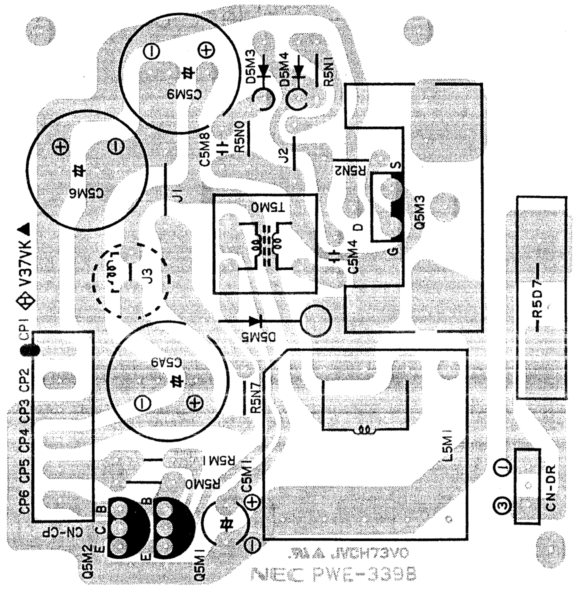
CN PWB ASSY (PWE-328E)

— Solder Side —


NEC PWE-339A
V37VK
CN-SC
SIDE PIN3
PARALELL
SIDE PIN1
CN-SB
CN-SA
JVCH73V0

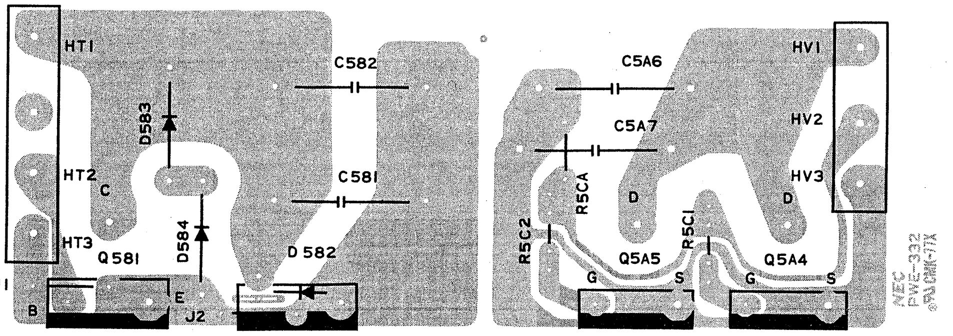
SDP PWB ASSY (PWE-339A)

— Solder Side —


C5M9
C5M6
C5A9
Q5M3
T5M0
L5M1
R5D7
CN-CP
CN-DR
V37VK
JVCH73V0
NEC PWE-339B

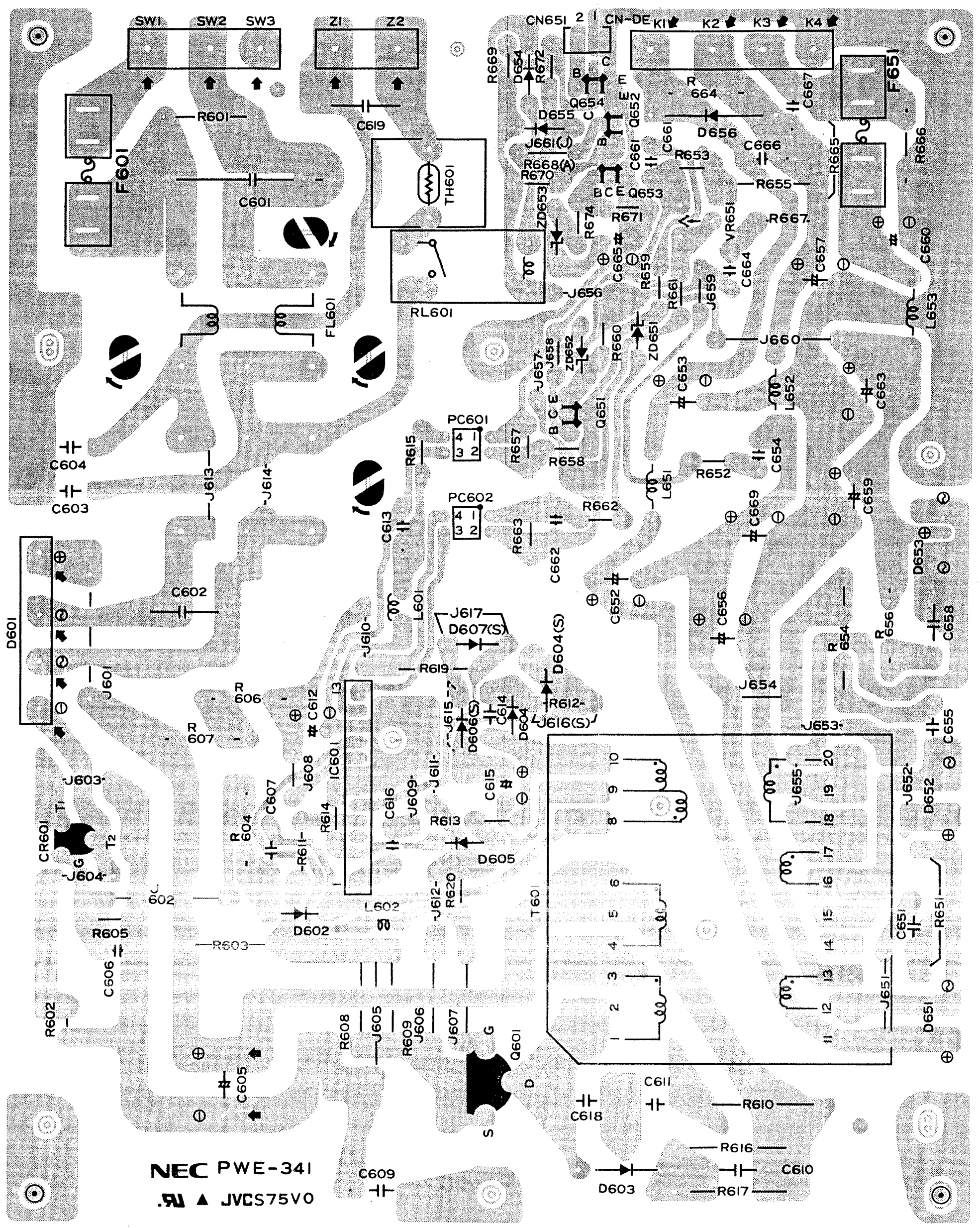
CHP PWB ASSY (PWE-339B)

— Solder Side —


HT1
HT2
HT3
C582
C581
D583
D584
D582
Q581
J1
J2
C5A6
C5A7
R5CA
R5C2
R5C1
Q5A5
Q5A4
HV1
HV2
HV3
NEC PWE-332

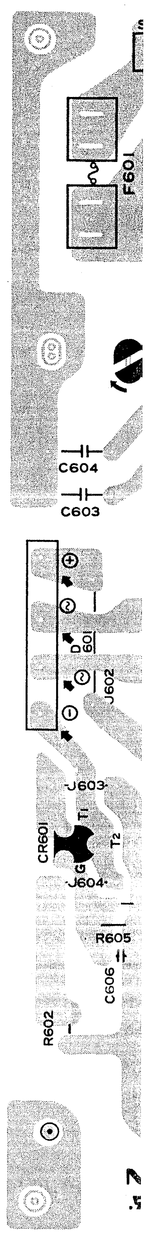
TR PWB ASSY (PWE-332)

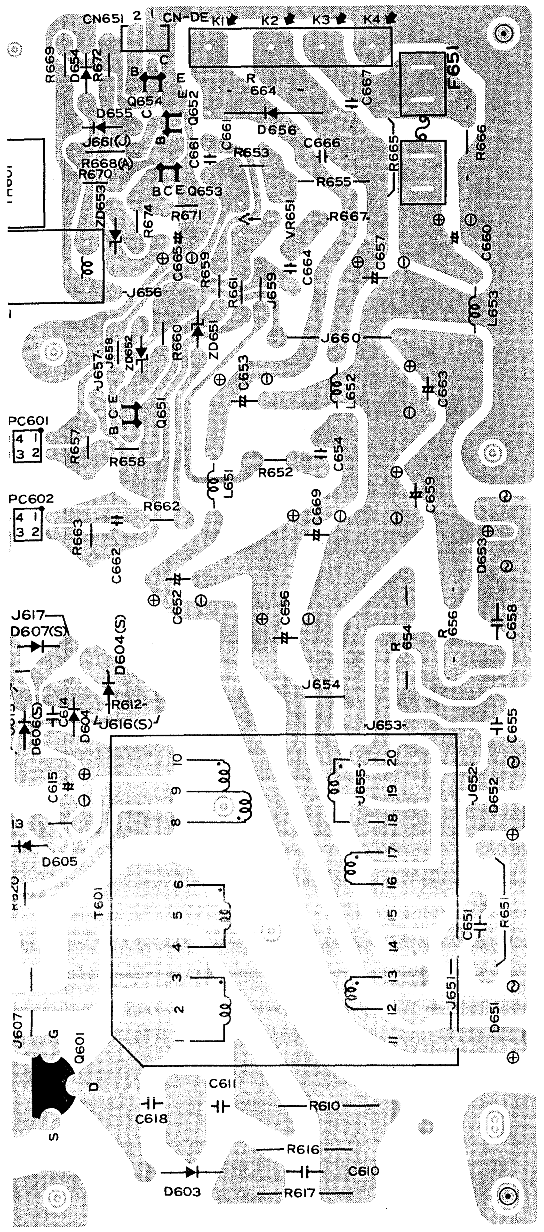
— Solder Side —


SW1
SW2
SW3
Z1
Z2
CN651
CN-DE
K1
K2
K3
K4
F601
F651
TH601
RL601
FL601
PC601
PC602
IC601
D601
CR601
Q601
T601
NEC PWE-341
JVDS75V0

SW REG PWB ASSY (PWE-341)

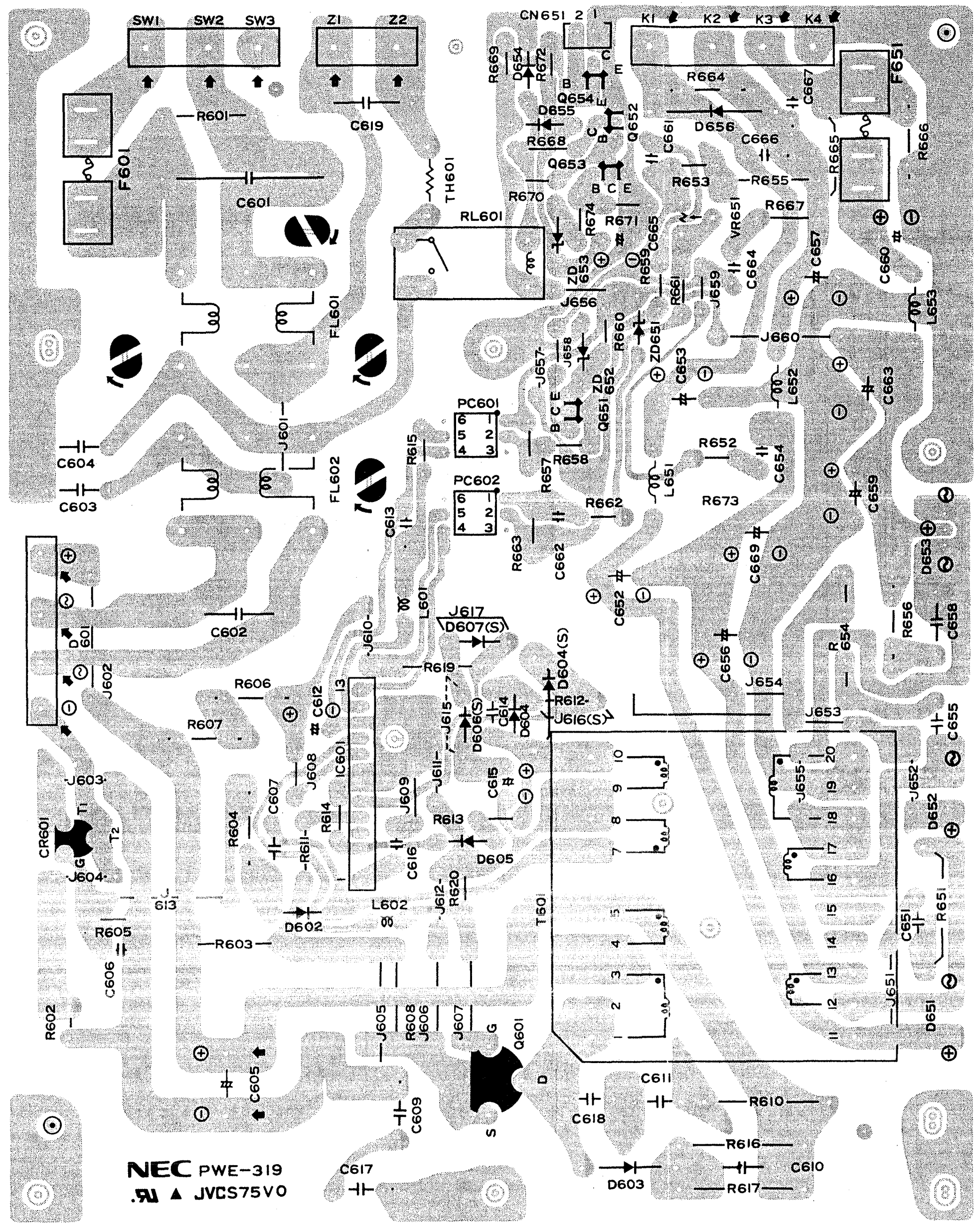
— Solder Side —




CN651
CN-DE
K1
K2
K3
K4
F651
Q654
Q652
Q653
Q651
D654
D655
D656
R669
R672
R664
R653
R655
R665
R666
R667
R668(A)
R670
R671
R674
ZD653
J661(J)
J656
J657
J658
ZD652
ZD651
R659
R660
R661
C661
C665
C666
C667
C657
C660
C664
VR651
J659
J660
L653
L652
L651
C653
C663
C654
R652
C669
C659
PC601
PC602
R657
R658
R662
R663
C662
C652
C656
C658
D653
J654
J653
J655
R654
R656
C655
J617
D607(S)
D604(S)
R612
J616(S)
D606(S)
C614
D604
C615
D605
T601
C651
R651
J651
J652
D652
D651
J607
Q601
G
D
S
C611
C618
R610
R616
R617
C610
D603

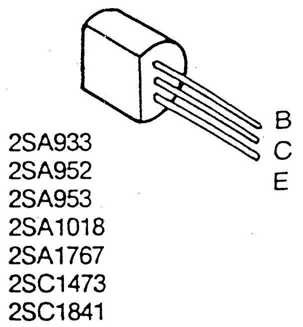
B ASSY (PWE-341)

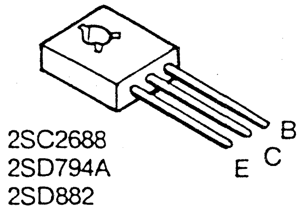
lder Side —

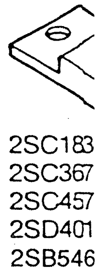

SW1
SW2
SW3
Z1
Z2
F601
R601
C619
C601
TH601
RL601
FL601
FL602
J601
C604
C603
R615
C613
L601
J617
D607(S)
J602
C602
R606
R607
C612
J608
IC601
R619
J610
J615
D606(S)
C614
D604
J611
C615
C607
R604
R614
R611
J609
R613
D605
C616
R620
J612
L602
CR601
J603
J604
T1
T2
J613
R605
R603
D602
C606
R602
J605
R608
R609
J607
Q601
G
D
S
C605
C609
C617
C611
C618
R610
R616
R617
C610
D603
PC601
PC602
R657
R658
R662
R673
R663
C662
C652
C656
C669
C659
D653
J654
J653
R656
R654
C658
C655
J652
J655
D652
T601
C651
R651
J651
D651
CN651
K1
K2
K3
K4
F651
R664
D654
R669
R672
Q654
Q652
Q653
Q651
D655
D656
R668
R670
R674
R671
ZD653
ZD652
ZD651
R659
R660
R661
J656
J657
J658
J659
J660
C661
C665
C666
C667
C657
C660
C664
VR651
R653
R655
R665
R666
R667
L653
L652
L651
C653
C663
C654
R652
R612
J616(S)
D604(S)
NEC PWE-319
JVCS75V0

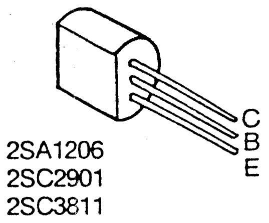
SW REG PWB ASSY (PWE-319)

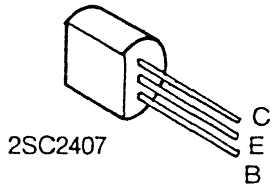
— Solder Side —

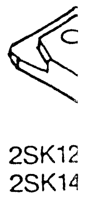

2SA933
2SA952
2SA953
2SA1018
2SA1767
2SC1473
2SC1841
B
C
E

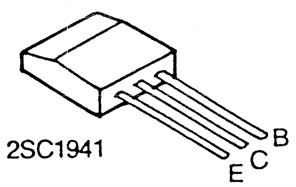

2SC2688
2SD794A
2SD882
B
E
C

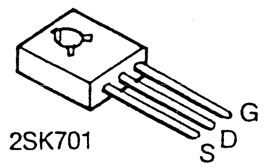

2SC183
2SC367
2SC457
2SD401
2SB546

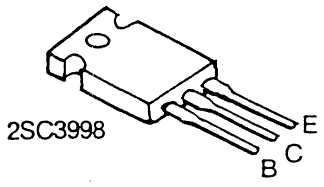

2SA1206
2SC2901
2SC3811
C
B
E

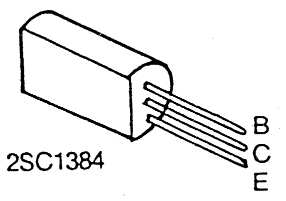

2SC2407
C
E
B


2SK12
2SK14


2SC1941
B
E
C




2SC3998
E
B
C


2SC1384
B
C
E

2SA93
2SC17
DTA1
DTA1
DTA1
DTA1
DTC1
DTC1
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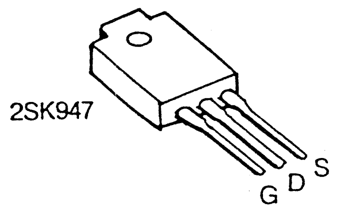
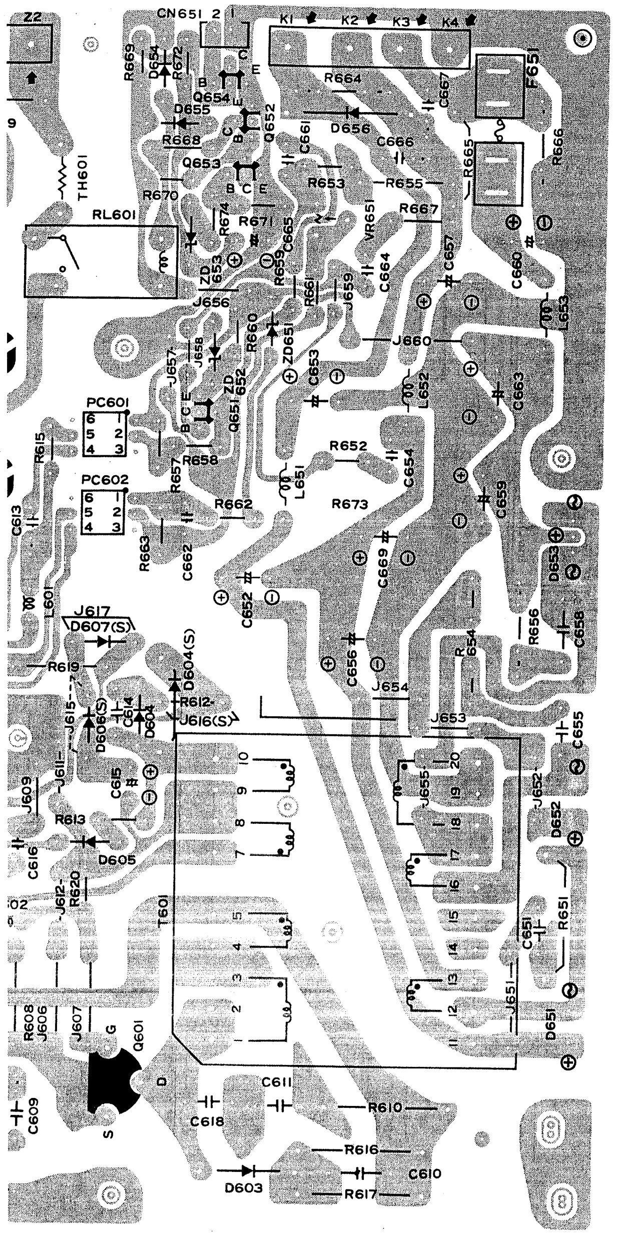
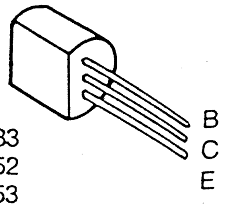
DTC1
DTC1
DTC1
DTC1
DTC1




Z2
CN651
K1
K2
K3
K4
F651
R669
D654
R672
Q654
D655
R668
Q652
C661
R664
D656
C667
C666
R665
R666
TH601
Q653
R670
R653
R655
RL601
R674
R671
C665
VR651
R667
C657
ZD653
C664
C660
L653
J656
R659
J659
R661
R660
ZD651
J660
J657
J658
ZD652
C653
L652
C663
PC601
Q651
R615
R657
R658
R652
C654
PC602
L651
C659
R662
R673
C613
R663
C662
C669
D653
L601
J617
D607(S)
C652
R656
C658
D604(S)
C656
R619
J654
R654
R612
J616(S)
J653
C655
J615
D606(S)
C614
D604
J611
C615
J655
J652
J609
R613
D652
C616
D605
J612
R620
T601
C651
R651
R608
J606
J607
D601
J651
D651
C609
C618
C611
R610
R616
D603
C610
R617
G
D
S

PWB ASSY (PWE-319)

- Solder Side —



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2SA1018
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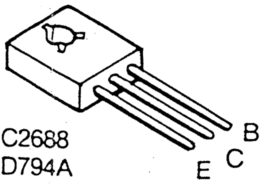
2SC1841



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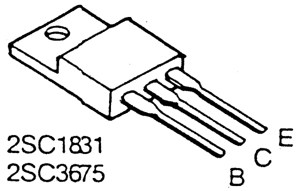
2SD882



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2SC4572
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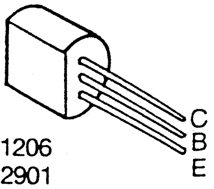
2SB546



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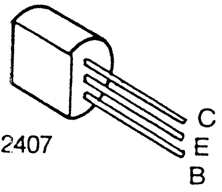
2SC3811



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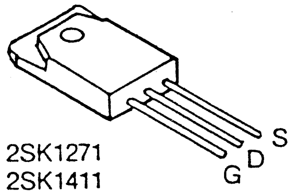

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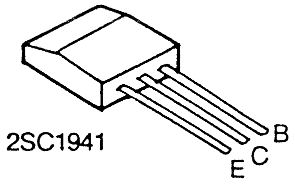

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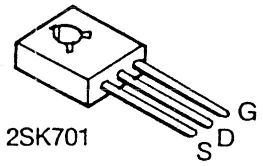
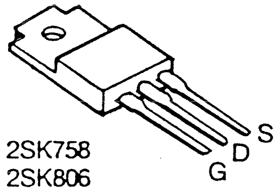


2SK701



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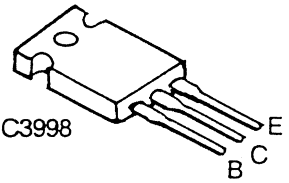
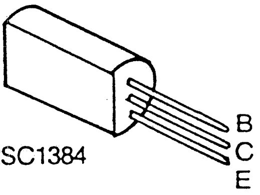
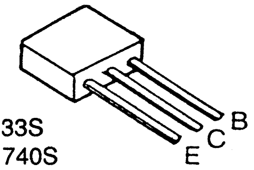
2SK806



2SC3998



2SC1384



2SA933S
2SC1740S
DTA114ES
DTA143ES
DTA144ES
DTA144WS
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DTC114YS
DTC115ES
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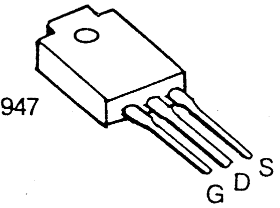
DTC144ES
DTC143XS
DTC143ZS



2SK947

E: EMITTER
B: BASE
C: COLLECTOR
G: GATE
D: DRAIN
S: SOURCE